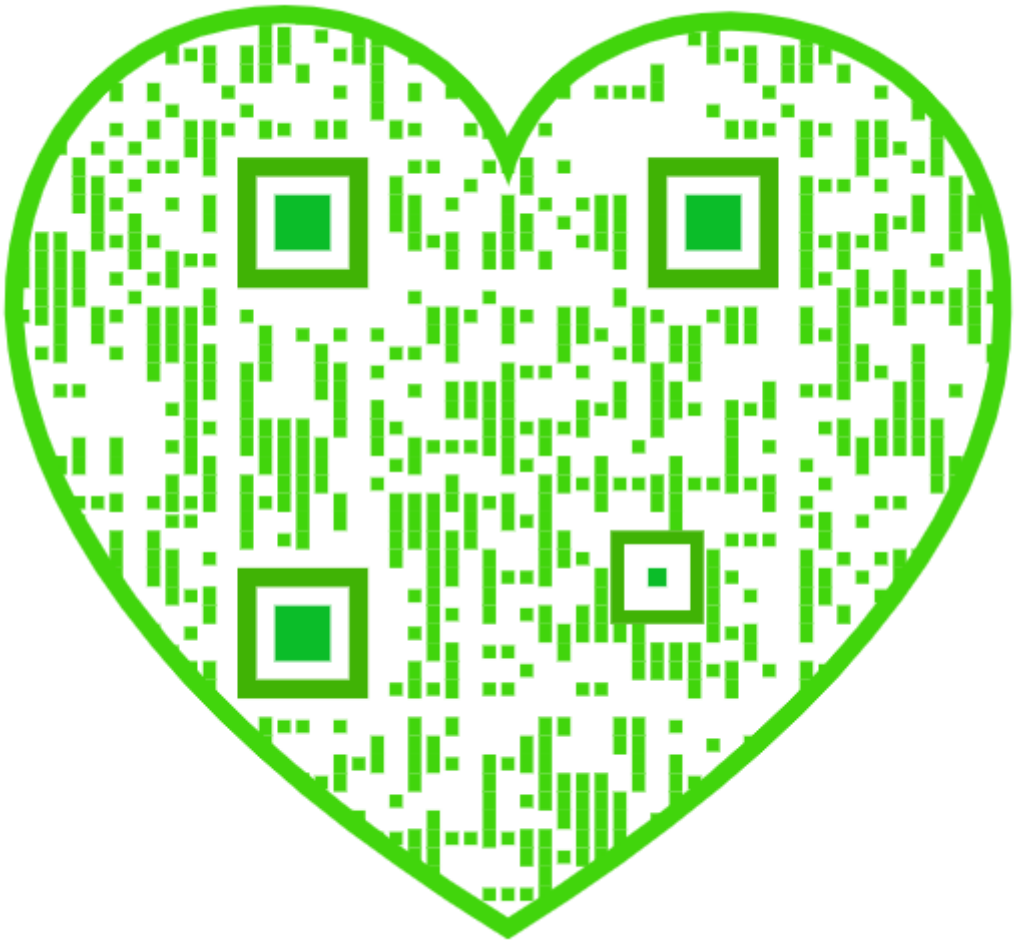

THE ART OF STUDY

A MANUAL FOR TEACHERS AND STUDENTS OF THE SCIENCE AND THE ART OF TEACHING

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Art of Study.

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PREFACE.

THE ultimate object of this book is to place the Art of Study as a tool or instrument in the hands of pupils and students in schools. But as this object can be reached only by way of the teachers, the book is primarily addressed to them, and to students of the science and the art of teaching. It is, therefore, plainly necessary in the first place to demonstrate the relations that should exist between the pupil and the teacher in the school, and then to present practical methods by which the teacher may establish and maintain such relations. Only through these means can the grand end be reached. The book, it will be seen, proposes a partial readjustment of the relations existing between the pupil and the teacher. In other words, it proposes to effect a partial shifting of the center of gravity in the school, by making the pupil the center of the system and placing the teacher in his proper orbit.

It would have been easy greatly to multiply the parallel readings accompanying the chapters, but my observation is that in such a case a small but well-chosen bibliography is better than a large one.

B. A. HINSDALE.

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THE ART OF STUDY.

CHAPTER I.

LEARNING AND TEACHING.

ONE of the most valuable arts that a boy or a girl, a young man or a young woman, can learn is the art of study. It is also an art that is nowhere adequately taught. It receives little conscious attention on the part of either teacher or pupil in the school, and outside the school it is almost wholly neglected. These facts furnish the reason for the preparation and publication of this book, which deals with the leading features of this art.

Value of the Art of Study.

In entering upon the subject, the first thing that demands attention is, obviously, to bound and describe the territory that the book will cultivate. To do this will require two or three brief chapters. We must begin with learning, which is the primary activity of the school, and with teaching, which is so closely connected with learning as almost to form a part of it.

Field of this Work.

The science and the art of teaching assume that there is a duality of existence,—the mind and its environment, or the mind and the world. Philosophers sometimes

deny that this duality exists in reality, and affirm that there is only one existence, of which mind and the world are only different phases. But this is a metaphysical, not a pedagogical, question. Pedagogy starts with the apparent duality of existence, and never stops to inquire whether it is real or not. The problem of learning, or mental growth, then, involves the following elements:

The Duality of Being.

1. The mind, which is self-active and capable of learning or of growing by its own activity.

The Process of Learning.

2. Objects of knowledge or things capable of being known. These are of various kinds, as natural objects, the facts of human society, and the facts of the mind itself.

3. A connection between the mind and such an object, for there is no activity of the mind, and so no knowledge or mental growth, until the two are brought into due relation. Either the mind must go to the object of knowledge, or the object of knowledge must be brought to the mind.

At this point I should state that many objects of knowledge can be viewed in two ways—immediately and mediately. In the first case, the mind and the object are brought into immediate contact; in the sphere of the senses the individual sees or hears or handles the object for himself, and is not dependent upon the eyes or ears or fingers of any other person. In the second case, the individual knows the object through some report or representation of it made by another, that is, through another's mediation. Thus, I have seen Detroit and Lake Erie and have a first-hand or immediate knowledge of them, but Constantinople and the Black Sea I have not seen, and so know them only mediately or at second-hand, that is,

through language and pictures. In the case of first-hand knowledge there are two terms in the series; in the case of second-hand knowledge there are three terms. This distinction of first and second-hand knowledge, while important in its own place, does not, however, touch the core of the learning process. No matter whether we know the object directly or indirectly, the object itself or the representation of it must come into real relation with the mind. Thus our earliest knowledge originates in points of contact between our mental faculties and natural objects lying right about us in the world. Later we learn other objects through language and other forms of representation. We cannot explain the excitation or activity of the mind that is caused by bringing objects of knowledge into contact with it, any more than we can explain the excitation of the mouths of certain animals when particles of food come in their way; but we are certain of the fact—the young mind puts out its tentacles, so to speak, and makes these objects of knowledge its own.

First and Second-hand Knowledge.

The word "learn" is supposed to come from a root meaning to go or to go over, and it means to gain knowledge or information in regard to some subject; to ascertain by inquiry, study, or investigation; to fix in the mind; to acquire understanding or skill. Activity is involved in the very root idea.

The Word "Learn."

The root of the word "teach" means to show, and in the broadest sense it means to secure the desired relation between the mind and some appropriate education-material. It may be conceived of as leading the mind to knowledge, or as bringing knowledge to the mind. The teacher, accordingly, is merely a mediator between the knowing mind of the pupil, on the

The Word "Teach."

one hand, and the matter that is to be known, on the other. He brings the two together and so assists the mind in the generation of knowledge. Hence the definitions: "To teach is to cause to learn;" "Teaching is causing another to know;" "Teaching involves the idea of knowledge obtained by an active mental process."

The Two not Inseparable.

Learning and teaching, closely united as they are, are not inseparable, because a man may learn without a teacher in the school of self-cultivation. It may be said that in such a case the learner is self-taught, or is his own teacher, but such use of the words, while consonant with the nature of the teaching process, is rather outside of the strict line of usage.

Relations of Learning and Teaching.

But while there may be learning without teaching, there can be no teaching without learning. Learning is not merely the correlative idea of teaching, but is one of its constituent elements. Teaching involves the idea of a pupil, and this pupil in a state of mental activity that is produced by the teaching. When the pupil's mind ceases to respond to the substance presented, there is no teaching, no matter what the teacher may do. When learning ceases, teaching ceases. A teacher cannot teach a group of absolutely inert pupils any more than he can teach a group of stumps or a pile of bowlders. In fact, such children are not pupils at all. To appropriate the words of another writer, "Teaching is that part of the two-fold learning-process by which knowledge which is yet outside of the learner's mind, is directed toward that mind; and learning is that part of the same two-fold process by which the knowledge taught is made the learner's own. Still, as before, however, there can be no teacher where there is not a learner; although, on the other hand, there may be a learner where there is no one else than himself to be his teacher."

So this writer insists that intelligent, purposeful teaching includes the idea of two persons, both of whom are active, and not merely active, but active over the same lesson. This end may be secured by the teacher hearing a recitation and commenting on it; but this is not necessarily teaching, since the pupil may be merely exercising his memory, reciting what he has memorized verbally without understanding a word of it, and so is not taught anything because he does not learn anything. In such case he is not caused to know a single fact or truth that he did not know before, either from the lesson itself or from the teacher's hearing him recite; nor does he learn anything by his teacher's wisest comments or explanations, no matter how valuable these may be in themselves, if he pays no attention to them or if he is unable to understand them. There must be mutual effort directed to the same end. The teacher must strive to cause the pupil to learn a particular fact or truth that he wants him to know; the learner must seek to learn this particular fact or truth, and until the two are enlisted in this common work, the process of teaching has not begun. To be sure, teaching and learning are things of degrees; I am here speaking of the ideal.

Teaching Implies Learning.

Strictly speaking there is no such thing as giving or imparting knowledge. Every one must make his own knowledge, for man is a knowledge-maker by nature. All that one person can do for another, as a teacher for a pupil, is to help to do this work. The child is engaged in making knowledge from his earliest days.[1]

[1] "In this sense we have all been engaged more or less in original research from our earliest years; and we probably attain greater success in infancy than in youth or in later life. The young child is completely

Learning governs teaching, as the history of the word suggests. Once, and this no farther back than Spenser and Shakespeare, learning applied to both efforts, that of the pupil as well as that of the teacher; a man could learn a lesson or he could learn a pupil.

The function or office of the pupil and the function or office of the teacher are therefore perfectly clear. The pupil is to learn, the teacher is to teach or help him learn; both are active about the same thing, but active in different ways. More definitely, the function or office of the teacher is to mediate between the pupil's mind and the things that the pupil must learn or know. The question whether the teacher shall lead the pupil to these things or bring the things to the pupil, is much like the question of bringing the horse and the water together. The teacher's success is measured by the pupil's success. We shall not here enter into the elements that are involved in successful mediation between mind and knowledge, that is, in teaching, further than to say that the teacher must select matter which is suitable for the pupil at his stage of advancement, and so combine, arrange, and present this matter that the pupil can understand and learn.

Pupil and Teacher.

PARALLEL READING.—*Teaching and Teachers*, H. Clay Trumbull. Philadelphia, John D. Wattles, 1884. Chap. I. ("The Teaching Process." I have made free use of this chapter in preparing my own.) *Studies in Education*, B. A. Hinsdale. Chicago and New York, Werner School Book Co., 1896. Chap. I. ("The Sources of Human Cultivation").

cut off from all external sources of information; and it could acquire no knowledge beyond a remembrance of confused sensations, if it did not

possess the power of putting that and that together and finding things out for itself. By applying this power, however, the child succeeds in bringing a large measure of order out of the chaos of sensations which it experiences. The method that it uses is the scientific or knowledge-making method." *Prof. A. MacMechan.*

CHAPTER II.

STUDY AND ITS RELATIONS TO LEARNING AND TEACHING.

LEARNING is the activity of the pupil, teaching the activity of the instructor; and in the good school the two activities are found in constant relation. The pupil is striving to learn; the instructor to teach. We are now to define study and demonstrate its relation to teaching and learning.

Our English words "study," "student," and "studious" all go back to the Latin verb *studere*, which means, first, to be eager, zealous, or diligent about somebody or something — to be friendly, attached, or favorable to a person, or to favor him; and secondly, to apply one's self with zeal and interest to the acquisition of knowledge or learning, or to study. Both definitions denote an active state of mind; that is, the element of zeal or interest found in the original word runs through all its changes. In the second sense, therefore, a student would be one who pursues some subject with interest; he would study when he devotes himself zealously to mastering some subject, while a study would be a subject that he could pursue with zeal. The second and later meaning of the word seems remote from the

"Study," "Student," "Studious."

first one, but it is not difficult to explain how it originated.[1]

We shall have no further use for the original meaning of *studere*, since our subject lies wholly in the line of the later meaning or definition of the word. But even here we must narrow the field; for study, in the proper sense of the term, is by no means co-extensive with the pursuit or the zealous pursuit of knowledge. The tendency of usage is to confine the word within much narrower limits. Dr. Alexander Bain, for example, finds the idea of study closely associated with that of learning from books. To quote a few sentences from this writer:

Study and Learning

"We may stretch the word, without culpable license, to comprise the observation of facts of all kinds, but it more naturally suggests the resort to book-lore for the knowledge that we are in quest of. There is considerable propriety in restricting it to this meaning; or, at all events, in treating the art of becoming wise through reading as different from the arts of observing facts at first hand. In short, study should not be made co-extensive

Dr. Bain on Study.

[1] The question to be answered is how *studere*, which meant originally merely to be zealous about something, or to be diligent in general, came to be limited to diligence about knowledge or learning. Why was not the word limited to plowing, tailoring, or baking bread? Obviously, if a man is really eager or zealous about somebody or something, he will naturally give him or it serious attention; that is, he will inquire and try to find out how he can favor the man or secure the thing; and such inquiry is just what constitutes study in the secondary sense of the word. This gives the process or method prominence, and it was easy when this point had been reached, if not indeed necessary, to limit *studere* in the abstract, or to study as we are accustomed to use the word. Thus it came about that *studere* came to mean to pursue knowledge zealously, and *studium*, the correlative noun, came to mean a subject, a branch of knowledge, or a study. *Studium* also meant a place where study is done, or a school. Thus, the institutions that we now call universities were originally called *studia universalia*, or public schools.

with knowledge-getting, but with book-learning. In thus narrowing the field, we have the obvious advantage of cultivating it more carefully, and the unobvious, but very real advantage of dealing with one homogeneous subject."

The last remark refers solely to Dr. Bain's own treatment of the subject, but it is just as applicable to my own.

Study and the Use of Books.

He says again: "The mental exercise that we now call 'study' began when books began, when knowledge was reduced to language and laid out systematically in verbal compositions." [1]

So far the history of the word supports Dr. Bain's view. Unmistakably the tendency has been to confine the word "study" to the use of books. When we deal with real things, as natural objects, we commonly employ some other word or words. One may, to be sure, study a daisy, a crab, or a piece of coral, but he is more apt to say he examines or investigates it. When Dr. Bain goes further, however, as he does, and says that study "relates more to self-education than to instruction under masters;" that "it supposes the voluntary choice of the individual rather than the constraint of an outward discipline," and that "the time for its application is when the pupil is emancipated from the prescription and control of the scholastic curriculum," we cannot yield our assent. This view excludes teachers and the school from the field of study properly so-called, and confines the word to self-cultivation, which usage, at least in this country, would not sanction, however it may be in England. With us, certainly, usage does not tend even to the partial exclusion of schools and teachers from this field. On the other hand, the word at once suggests those instruments of education.

Study not Limited to Books.

[1] *Practical Essays*, New York, D. Appleton & Co., 1884, pp. 203–4.

Study not Limited to Schools.

Still it is an important fact that study is not limited to schools. Men can study and do study without schools or teachers; to suppose that they do not is to commit a blunder even greater than to say that pupils do not study in schools. Unfortunately, many youths, on taking leave of school, leave study and studies behind them. They forget that when what Rosenkranz calls "the absolute limit of education"[1] is reached, the original inequality between the pupil and the teacher is canceled, and that the pupil should now enter into the field of self-culture. The two persons may continue to be friends, but they are no longer teacher and pupil. The relation that these words express is a beautiful one in its own proper time, but, protracted beyond that time, it is offensive. It argues patronage upon the one part and dependence upon the other. The French philosopher Condillac, addressing a pupil who had reached this stage of progress, said: "Henceforth, Sir, it remains for you alone to instruct yourself. Perhaps you imagine you have finished; but it is I who have finished. You are to begin anew"[2] This is the point of view from which it is sometimes said that the business of the teacher is to make himself useless, which he does by putting the pupil upon his feet and teaching him to walk alone.

Reading and Study Discriminated.

What has been said suggests the relation to each other of reading and study. As an exercise of mind, they do not differ save in degree; both arts look to obtaining thought or meaning from the printed page. But study is more than reading: it may be called intensive reading. The student goes over the matter more attentively than the reader;

[1] *The Philosophy of Education*, New York, D. Appleton & Co., 1886, p. 49.

[2] *History of Pedagogy*, Compayré, Boston, D. C. Heath & Co., 1886, p. 318.

he recalls it more fully, possesses himself of it more thoroughly. There is a difference, too, in the subject-matter of reading and study. We do not commonly apply the term "reading" to text-books and other works of a similar character prepared expressly for school use, but to books or other reading matter of a more general character containing literary elements. Thus, the pupil studies his grammar and arithmetic, reads or studies his "Lady of the Lake" or "Hamlet," but only reads the daily newspaper (unless it be the scores of the ball games) and the fugitive essay. Still more, reading embraces a wider range of mental interests than study. We read for amusement or diversion as well as for serious instruction, but that idea is rarely associated with studies, or at least with studies carried on in the school. Thus there appears in the modern word "study" that element of zeal or thoroughness which characterizes the ancient word *studere*.

The English Sense of "Read."

The remark should be added that in England study is not used in our peculiar school sense; "read" is rather the word that is employed where we say "study." Thus, at the universities, the student "reads" chemistry and calculus, Demosthenes and Tacitus, as well as Adam Smith and David Hume, while the hard student is the "hard reader." Again, we have spoken of knowledge or instruction as though it constituted the end both of study and of serious reading, nay more, the end of learning itself. This is a controverted question as well as an important one, but it will not be dealt with in this place beyond the promise to consider it in a future chapter.

In view of the preceding discussion the answer to the question, What is the relation of study to learning and teaching? is obvious enough. Study is the use of

books for the serious purpose of gaining knowledge; it looks to the mastery of a subject, or of some portion of a subject, by means of what has been written about it. More narrowly, pupils and students commonly associate study with text-books, but the association is not a necessary one. Study is a mode of learning, but not the only mode, for we can learn by observation, by listening to conversation, or by the simple reading of an article in the newspaper. Successful study of a subject is the same thing as learning it; if the student succeeds with a lesson, he knows it, not, perhaps, as fully as the author, or as the teacher, but he knows it according to his own measure. Thus the word tends to exclude oral instruction and the direct investigation of facts; that is, lectures or other oral lessons and the work of the laboratory. At the same time, the exclusion of these exercises is more formal than real, because intellectual applications never wholly lose their identity. Still, we shall best advance our immediate object by keeping books, and particularly text-books, constantly in mind; for while the investigation of things and the study of books have much in common, they are, nevertheless, distinct arts. The library is not a laboratory or the laboratory a library, except in a figure of speech. And, still further, notwithstanding the great progress made in recent years by real study, that is by the direct study of objects, as in nature lessons, the book still gives, and will continue to give, the norm to the school.

Study and Learning.

PARALLEL READING.—*Practical Essays*, Alexander Bain. New York, D. Appleton & Co., 1884. Chap. VIII. ("The Art of Study"). (See Chapter XXI. of the present work for further references).

CHAPTER III.

THE ART OF STUDY DEFINED.

WE have now defined learning, teaching, and study, and demonstrated their relations. The pupil learns when he acquires knowledge, and the teacher teaches when he assists the pupil to learn. Again, the pupil studies when he seeks to meet his teacher fairly and squarely on the lesson that has been assigned him by preparing that lesson. But what is the art of study?

Two Senses of Art: The Practical and the Reflective.

The term "art" is used in two senses. First, it means skill or practical ability actually shown in the pursuit of some calling or activity. Secondly, it means the activity in which such skill is shown considered as a subject. Thus, when we speak of the photographer's art we may mean either the degree of skill or proficience that a particular photographer shows in making photographs, or the making of such pictures considered as a vocation to be followed or a subject to be studied. The same may be said of painting, oratory, architecture, teaching, or any other pursuit to which the term "art" is properly applied. To be master of one's art is to possess much ability in the prosecution of some employment called an art. Furthermore, an art in the second sense has its own methods, rules, and history that may be made the subjects of investigation or study. In this sense the term "reflective" may be applied

to an art, the suggestion being that the cultivator of this art halts, so to speak, in his practice or activity in order to make it the subject of examination. Nor is this all: certain arts have rules and methods in common, and so we apply the term to them collectively, calling them art in a general or abstract sense.

Relations of Skill and Method.

The relations of art as practical skill and art as method or a code of rules is an interesting subject. Experience counts for much in such matters, but the intelligent practice of any art presupposes a certain amount of study of, or of acquaintance with, its method and rules. The practitioner in such case must be familiar with the leading features of his art. He may not have acquired his knowledge in large degree from books or lectures, but, if not, he must have investigated the subject directly for himself. On the other hand, it is equally clear that no mere investigation of an art, no amount of knowledge concerning it, will, of itself, make a skillful practitioner or artist. Knowledge, while invaluable in itself, can never be made to take the place of that practice which makes perfect. The student, if he would possess skill, must try his own 'prentice hand until it becomes a practiced hand. There are many students of painting, sculpture, and other arts, who are not looking forward to the practice of these arts at all, but who pursue them because they think the knowledge thus acquired is useful, or because they value the culture that they afford.

Practice and Theory.

The value of practice or experience in what are sometimes called "practical matters" is well understood; so well, indeed, that the "theory," as it is often mistakenly called, is greatly undervalued in comparison with practice; but in other fields theory is sometimes overrated. In moral training, for

example, it is sometimes assumed that the great thing is the acquirement of moral ideas, precepts, and rules, or moral instruction, thus ignoring or undervaluing moral habits, which can be built up only through activity or practice.

The Art of Study Defined.

What has been said of the arts in general is true of the art of study in particular. The phrase means, first, personal skill, or practical ability, in carrying on studies, and, secondly, study as a subject of investigation, consisting of its own peculiar method and rules. The student illustrates the first meaning of the art of study when he studies according to an intelligent plan some subject, such as history or literature; and the second, when he seeks by study to find out the method and rules of the art, whether by his own immediate effort or by attending to the instruction of a teacher or an author. In this second sense study is a reflective art.

Reflective Art and Science.

What has now been called art in the second or reflective sense, is sometimes called theory or science. This is a great mistake. Theory or science consists of facts and principles; reflective art, of rules and methods; both duly organized. The one answers the questions what? and why? the other the question how?

To the preceding discussion of study as an art, two or three observations should be added.

Practice not Formal Art.

1. It is not necessary that a student, to be successful in study, should study his art in a formal or reflective way. Few good students, even those as far advanced as the college, have done so. These students have acquired their skill in study by the practice of study. It is, to be sure, a fair question whether

students, or at least advanced students, might not give more formal attention to their art with advantage to themselves; but we shall not enter upon a discussion of the question in this place.

2. The student may study his art laboriously and never become a good student; that is, never learn to practice his art successfully. Here, as elsewhere, one may acquire knowledge of method, rule, and precept without acquiring the ability or skill to put it to use. In fact, at a certain stage of progress, such knowledge is a positive disadvantage, as it impedes rather than accelerates practice. But the main fact is this — a pupil will learn to study by studying, and not otherwise, just as he will learn to swim by swimming, and not otherwise.

Formal Art not Practice.

3. It is practice and study, then, and not simply study, that makes one perfect in an art. But everything depends upon the kind of practice. Mere mechanical grinding, no matter how long continued, will never bring perfection. Practice must be intelligent, or it must be conducted according to a right method. Now some happy pupils may, without great loss of time, find out this method for themselves, but the majority of pupils will not be able to do so. Accordingly the teacher should give much attention to his pupils' efforts to learn their lessons, looking after the habits that they are forming, and, as far as possible, assisting them to form good habits. For this there are two reasons: one is that he will secure far better immediate results, and the other that he will assist the pupils to acquire an art which will be useful through life. Such work requires much oversight; the teacher must discover the pupils' incorrect way of doing things and show them the

Practical and Formal Study.

correct way, and by hint, suggestion, and encouragement hasten them on their road. Nor must it be forgotten that the teacher may overdo as well as underdo; the pupil, in a most important sense, must learn to study for himself, and all that the teacher can do is to help him. In particular, where assistance takes the form of rule and precept, it must, to be effective, be indirect and incidental.

PARALLEL READING.—*Studies in Education*, B. A. Hinsdale. Chicago and New York, Werner School Book Co., 1896. Chap. IV. ("The Science and the Art of Teaching").

CHAPTER IV.

NEGLECT OF THE ART OF STUDY.

THIS book opens with the two statements that the art of study is one of the most valuable arts that a child or a youth can acquire, and that it is nowhere adequately taught. Some of the facts that justify the first statement have been given in the preceding chapters, and some of those that justify the second one will be given in this chapter.

Neglect of Art of Study in Schools.

In the schools, the art of study is taught, for the most part, indirectly, wholly at random, and very imperfectly. No book or manual is put into the pupil's hands, and, if one were, he could not use it. Furthermore, the ordinary teacher does not know how to teach the art well, or even understand its importance. It is to be feared that often he would not be able to set a very good example of practice or skill in the art, if called upon to do so. The books, articles, and lectures from which the teacher has gained his own instruction relating to teaching give little attention to study, at least under its own proper name and in a practical manner. Outside of the schools, things are in one respect better than they are inside of them. The literature of self-culture treats the art of self-culture in a much more helpful way than the literature of teaching treats the arts of study and of learning. Unfortunately, however, this literature is quite

beyond most of the pupils in the schools, and is not much read by the majority of teachers themselves.

In consequence of the general neglect properly to teach the art of study in the schools, most pupils pick up such knowledge and skill as they actually possess. As a result, a large majority of them never become proficient in the art, and while everybody can read, we find society full of young people, and old people too, who have no power, or very little, to carry on the investigation of any subject by means of books. Miscellaneous reading for diversion, or even for the purpose of obtaining knowledge, is common enough, but it is not study.

Pupils Deficient in the Art.

Competent judges will unhesitatingly assent to the statements that have just been made. Moreover, they will assent, with equal readiness, to the further statement that multitudes of persons suffer greatly on account of their ignorance of this art. In the schools, particularly, time is wasted, energy thrown away, and opportunity lost because pupils cannot study, that is, cannot properly do their work. Let it not be supposed that these remarks apply to elementary schools only, to which the name pupil might seem to limit them; they apply also, but in less degree, to high schools and academies and even to colleges and universities.

Waste of Time in School.

Notorious facts lend to these remarks all needed confirmation. For example, one of the commonest complaints made by teachers relative to their pupils is that they are not properly prepared to do their work. This complaint is heard from the bottom of the scale to the top, and becomes louder as we ascend. It is loud in the upper grades

The Testimony of Teachers.

of the elementary schools, louder in the high schools, and loudest in the colleges. It takes on two forms. One form is that pupils do not know what they ought to know; the other and more significant form is that these pupils do not know how to study, or cannot practically do their work. The relation of these two answers to each other — or the relation of positive knowledge to mental power and skill in acquiring knowledge — is an important topic; but for the present purpose the one form of complaint is as serious as the other. It may, perhaps, be said that the complaints which teachers make of the lack of preparation in their pupils are exaggerated, and we can readily see that such may be the case; but it is impossible to dispose of them all in that way, or, indeed, in any way short of assuming that there is a great deal of truth behind them.

What is a Reasonable Degree of Progress in Schools?

At this stage of the discussion there occurs the question, What is a reasonable rate of progress for the pupil to make in school? Or, to put the question in another form, What is a reasonable requirement to impose on him at any given stage of his educational progress? On this point there is some diversity of both practice and opinion. It is well known that the French boy or the German boy at the age of eighteen or nineteen, trained in the schools of his country and looking forward to the university, is fully two years in advance of the American boy of the same age trained in our schools and having a similar destination. The superiority of the foreign boy, however, must not be misunderstood; it lies exclusively in the education that is furnished by the schools. In the broader sense in which the word is often used — the training and knowledge that come from immediate contact with the world—the French boy or the Ger-

German, French, and American Boys.

man boy is as much inferior to the American boy as he surpasses him in scholastic attainments and ability. More definitely, the American boy, when he leaves the high school, is much inferior to the German boy on leaving the gymnasium in two particulars; first, the knowledge that is directly obtained in the school, and second, mental power. He is, however, a little younger. What is the cause of this disparity?

For one thing, the German and French boys who finish the studies of the secondary schools are a more carefully selected class of boys, intellectually considered, than the boys who graduate from our high schools. A majority, if not nearly all of them, are in training for the university, while much the larger number of the graduates from our high schools pass at once into practical life. For this reason, these foreign boys, considered as scholars, are superior to our American boys who attend the high school.

German and French Schools.

For another thing, the tension of the higher intellectual life is greater in France or Germany than it is in the United States. Then, the French and German courses of study, especially in secondary schools, have been more carefully wrought out and are better adapted to their purposes than our courses of study. From the day that a German boy at the age of nine years enters the gymnasium, he probably has his eye fixed upon the university or the technical high school. This topic has attracted much attention the last few years at the hands of our specialists, who have been seeking at once to shorten and to enrich our school programmes. Again, it may be that the German boy or the French boy, as compared with the American boy, purchases his scholastic superiority at the cost of practical knowledge and ability; but it is plain that the American boy might make

more rapid progress in school than he does without impairing his practical talents, and that there is urgent reason why he should do so, especially if he is looking forward to a liberal education and a professional career.

German Teaching.

Important as these considerations are, they do not fully answer our question. When all has been said, the fact remains that much of the "marking time" in our schools is due to the relative incompetence of teachers, which again is due to the most patent causes. In Germany, teaching is a serious calling, to be followed for life; in the United States, it is only too often the vestibule leading to a calling. Comparing more closely the teaching of our schools with that of the German schools, it is found to be inferior in two important particulars: the knowledge that it imparts, and the habits of mind that it generates. For the present purpose, the main fact is this — the American boy does not know how to study as well as the German boy, or is not an equal master of his art. Pupils in schools often "mark time" because they cannot march forward.

Reform to Begin with Teachers.

The burden of this chapter is the neglect of the art of study in the schools. In the first instance, the fault is the fault of teachers. But why do teachers neglect this art? The answer is partly because they do not appreciate its value, and partly because they do not know how to give it the kind of attention that it requires. Moreover, this lack of appreciation and this lack of ability are closely bound up together. Practical reform, therefore, must begin with the better preparation of teachers, not so much, indeed, in general scholarship or in the studies that they teach, (which is an important topic by itself,) but in the art of study—what it is, and how it must be taught to

pupils. How teachers shall secure this better instruction is a question that will come before us further on.

PARALLEL READING.—*The School and Society*, John Dewey. Supplemented by a statement of the University Elementary School. Chicago, University of Chicago Press, 1899. *Educational Reform*, Charles William Eliot. New York, The Century Co., 1888. Chap. VII. ("Can School Programmes be Shortened and Enriched?") Chap. XI. ("Shortening and Enriching the Grammar School Course"). *German Higher Schools*, James E. Russell. New York, Longmans, Green & Co., 1899. *The Secondary School System of Germany*, Frederick E. Bolton. New York, D. Appleton & Co., 1900. *Teaching the Language-Arts*, B. A. Hinsdale. New York, D. Appleton & Co., 1896. (See remarks in Introduction relative to American, French, and German students).

CHAPTER V.

IS KNOWLEDGE OR MENTAL DEVELOPMENT THE END OF TEACHING?

THE teacher who has gone carefully through the foregoing chapters may think that he should now be brought to the consideration of his own relation, as a teacher, to the art of study. What is my work, my duty in the premises? he will naturally ask. It is the main object of this book to answer this question; but the answer will be all the clearer and stronger if it is preceded by a brief discussion of the end or aim of education itself.

Subjective and Objective Pedagogy.

M. Compayré notices two different tendencies in modern educational thought and practice. These tendencies appear when we consider the question, What is the end of education? Is it a change that the mind itself undergoes, or is it a store of facts and ideas that the mind requires? Compayré states the question thus: "There are those who wish above all to develop the intelligence; and there are others who are preoccupied with furnishing the mind with a stock of positive knowledge." [1] Some affect a subjective pedagogy, and others an objective pedagogy. He considers Descartes a leading exponent of the one school and Francis Bacon of the other. Which of these two tendencies is the true one? Both views are firmly rooted in language and in mental habit. The subjective pedagogy emphasizes power and capacity.

[1] *History of Pedagogy*, Boston, D. C. Heath & Co., 1897, pp. 191–192.

discipline and training, culture, development, and growth, while the objective pedagogy dwells on ideas, facts, knowledge, truths, science, and learning. It will not be difficult to maintain Compayré's claim that they are both equally right so long as they refrain from exaggeration.

Power Comes from Mental Activity.

First, mental discipline, power, culture,—call it what you will,—is generated by means of mental activity; while activity, self-activity, is indeed the very characteristic of the mind. But the mind acts only as it acts on something; it cannot act, so to speak, in a vacuum. Furthermore, the object that the mind acts upon is an object of knowledge, and the activity itself is knowing. Discipline and knowledge are acquired together.

Knowledge and Mental Activity.

But secondly, knowledge cannot be passively acquired. Knowing is an active process. The very word "study" implies zeal and thoroughness, as we have seen. The mind in forming its earliest ideas is something very different from the sensitive plate in the camera that merely receives impressions. Knowledge, then, depends upon the very agent that produces discipline and culture.

So far the path is clear. What difference does it make, then, whether we regard education as developed mind or as positive knowledge? This is the question that we are now to examine.

Power and Knowledge not Mutual Measures.

It may be strange, but it is true, that mental development and positive attainments are not mutual measures. If they were, the teacher's problem would be much simplified. Development may be in excess of attainment, and attainment may be in excess of development. It is well known that men are not efficient in the work of their hands

in the ratio of their strength or effort. The strongest man is not necessarily the best chopper, runner, or boxer; he may waste his strength in misdirected and unskillful attempts to accomplish what he does not know how to do well. Again, men are not efficient in the mental sphere in the ratio of their natural powers or of their efforts; some men do not know how to use their minds. On the other hand, there are those who succeed, some in physical and some in mental work, beyond their apparent strength. They make their blows tell, work to advantage, strike when the iron is hot, as we are all exhorted to do by the well-known prudential maxims. Here it is that directive intelligence and practical skill come into play. "So fight I," said St. Paul, "not as one that beateth the air." The figure comes from the boxing contest. The Apostle strove, metaphorically, to land his blows on the body of his antagonist. It is a well-known fact that habit or training both saves and increases power.

Misdirected Energy in Schools.

In the schoolroom misdirected and wasted effort is one of the commonest facts. It is one of the most serious of the wastes in education, of which so much is heard. Who that has seen much of schools has not witnessed the "painful inefficiency" and "laborious idleness" mentioned by Mr. Mill in his St. Andrews' Address as characteristic of the schools of England? The sight is a pathetic one — that of the pupil or student who has plenty of native power, but who does not know how to use it to advantage. The blind giants that figure in stories are no unfit types of many pupils found in schools — only the giants are generally restrained by their blindness from doing mischief, which is more than can always be said of the pupils.

What, then, shall be the teacher's aim, — mental discipline or positive knowledge? Neither one to the exclusion of the other; on the contrary, the teacher should constantly keep his eye on both these ends from first to last. Dr. Thomas Arnold said to the boys at Rugby: "You come here, not to read, but to learn how to read," that is, to study, for such is the English use of the word; and Sir William Hamilton told his students at the University of Edinburgh that his aim would be to teach them, not philosophy, but to philosophize. But it is very plain that the boys at Rugby could not learn how to read, or study, as we should say, without reading or studying, or the students at Edinburgh learn to philosophize if they were kept ignorant of philosophy; as these distinguished teachers knew perfectly well. The main question relates to emphasis, as so many educational questions do. The teacher should pay due heed to the way the pupil does his work, his mental habits, the development of his mind—see, in a word, that he acquires the art of study; but he should also insist upon positive attainments in knowledge. Study is not "marking time," but it is marching,—getting somewhere. Education is not a Barmecide feast, but a substantial repast.

The Question One of Emphasis.

The teacher, let it be said again, must be careful how he places his emphasis. It was thought once that elementary education, and indeed all education, was mainly preparative, a preparation for further study or for real life. Not so much attention was paid to the pupil's positive attainments. The consummate flower of this view of education was the dogma of formal discipline,—the theory that by pursuing certain studies, as mathematics and classics, mental energy could be stored up to be drawn upon for any and all

The Dogma of Formal Discipline.

purposes. There is now a strong recoil from this position ; knowledge, we are told, is the end. This recoil was certainly needed, but it must not go too far. It will certainly go too far, however, if men are led to deny the preparatory function of education and to lose sight of the development of the mind.

Development and Knowledge.

It is probable that in the long run there is no antagonism, but rather complete concord, between development and knowledge, and that what is best for the one is best for the other; but in the short run this is not always, or indeed generally true. There are times, for example, when development and attainment should not receive equal emphasis. Elementary education is largely preparatory, looking to discipline, power, method, and skill; it is largely occupied with acquiring a command of certain arts, the perfect use of which will be found in the future. But this is not true, in the same sense, of university education, the great end of which is positive attainments or knowledge. Here the student is supposed to have mastered his arts, at least measurably. The intelligent teacher does not always look for the quickest returns. The amount of walking that a child does until he is two years old is no compensation, in itself, for the cost of his tuition in the art. It would have been much easier for his parent or nurse to carry him over the short distances that he has covered; but the present sacrifice is future gain. And so it is with the elementary school. As I have said elsewhere:

Learning to Read.

"To convey knowledge at first through reading, strictly speaking, is impossible. The fact is, that if all the time which is spent in teaching the pupil to read as a mere art were devoted to enlarging his real knowledge or mental store by plying his faculties of observation with objects, and through conversation, he

would know more at the end of a year of school life than he now knows. To be sure, the art itself contains objects of real knowledge, though of little value abstractly considered, and also confers discipline; still, from the point of view of real knowledge, the time so spent is mainly wasted. But this waste we gladly incur, since this incomparable instrument of acquirement when once gained is a hundredfold compensation." [1]

Weakness of the Objective Pedagogy.

Objective pedagogy has its own attractions for teachers, pupils, and patrons of schools. Holding up knowledge as its end, it produces results of a tangible character that can, to a great extent, be measured out in examinations. It is a very taking theory to the practical man, who rejoices in positive knowledge or what he sometimes terms "useful information." But it is attended by one peculiar danger: It tends to foster in the teacher the search for quick returns, and so stimulates the cramming system. Let a teacher become firmly possessed by the idea that the great end to be sought in teaching is increase of the pupil's knowledge, and, unless he is also possessed of moderation and self-restraint, he will, if energetic, surely fall to cramming.

Weakness of the Subjective Pedagogy.

On the other hand, subjective pedagogy has its attractions for certain minds. It is much affected by students of literature, ancient and modern, and by cultivators of philosophical studies. These persons tend to find the goal of education in the perfection of the mind itself, not in the abundance or character of its attainments. The teacher who takes this view has his own besetting danger, which is that sound ideas and practical methods will evaporate in vague notions and inefficient teaching. Both the ignorance and

[1] *Teaching the Language-Arts*, N. Y., D. Appleton & Co. 1896, chap. xii.

the indolence of the teacher may be veiled, and the lack of substantial attainments on the part of the pupil be excused, by the free use of such pleasant words as "development," "growth," and "culture." In the latter case the implication is that, although the pupil may not learn anything in particular, it is still well with his "mind." To some extent this is now an evil in many schools; the pupils are believed to be "developed," or at least to be "developing," no matter whether they know much or little, or whether what they know bears any relation to the end they have in view.

The Two Ends.

The conclusion is that the teacher who looks directly to knowledge should also remember mental development, while the teacher who looks directly to mental development should never forget knowledge.

The Teacher Need Not Declare his Purpose.

It should be added that the teacher is under no obligation to disclose his purpose to the pupil. To do so is sometimes injurious, and hence ends must not unfrequently be sought indirectly. This is particularly true in the moral sphere. Much depends upon what the end is. Knowledge may safely be held before the pupil's mind as a thing to be striven for; but, as a rule, little good will come, and much harm, from similarly holding out to him mental development. On this point Mr. Latham has some remarks which are so admirable that I shall venture to quote them:

Mr. Latham Quoted.

"There are some who think it possible to engage the interest of young people in their own mental culture, as much as in the acquisition of accomplishment, etc. . . . In the great majority of cases, however, entreaties to a youth to take earnestly to a study, in order to expand his mind, are pretty well thrown away. A boy is firmly persuaded that his mind is very well as it is—he cannot for the life of him understand what is meant by its being expanded—when you begin to talk about studies doing good to his mind, he

takes it to show that you have nothing better to say in their favor, and that in reality they are of no good. You will do more with him, usually, by calling on him to work in pure faith as a matter of duty, telling him that at that time he cannot be made to see the good of these studies, but that he must work, taking it on trust that there is a good, and that you know what it is, and would not worry him with lessons for lessons' sake.

"Sometimes a persuasive teacher will lead a few boys in the upper classes in a school to fancy that they are interested in the training of their minds. The result too often is that they are made self-conscious prigs. They will tell you that they are studying this and that to give them method, or accuracy, or a command of language. They are frequently discovering peculiarities in their own mental structure; they will consult their tutor on the way to remedy certain defects of which they are conscious—which defects, by the way, are mostly of that kind which they in their hearts believe to be only excellencies transformed —and so they get positively injured, either by the habit of retrospection in reality, or by the affectation of watching the action of their minds, and by boundless talking about themselves."[1]

The point of view taken in this chapter is that of the teacher in the schoolroom. It is assumed that the end of education—as preparation for complete living—has been chosen and the school set in order to gain that end. This done, the question presents itself to the teacher—Shall knowledge or discipline be my immediate end?

PARALLEL READING.—*On the Correlation of Studies*, W. T. Harris. (*Report of Committee of Fifteen on Elementary Education*). New York, American Book Company, 1895. *Studies in Education*, B. A. Hinsdale. Chicago and New York, Werner School Book Co., 1896. Chap. II. ("The Dogma of 'Formal Dscipline"). Chap. III. ("The Laws of Mental Congruence and Energy Applied to Some Pedagogical Problems").

[1] *On the Action of Examinations Considered as a Means of Selection*, London, George Bell & Sons, 1877, pp. 33-34.

CHAPTER VI.

THE FIRST STAGE OF INSTRUCTION IN THE ART OF STUDY.

IT was stated in the first chapter that the sole function of the teacher, as an instructor, is to mediate between the pupil's mind, on the one part, and the things that the pupil should learn or know, on the other. He should either bring the things that are to be known to the pupil, or lead the pupil to the things,—whichever way one may prefer to put it. How shall the teacher perform this function?

How shall the Teacher Perform his Function?

To answer this question we must recall the distinction made in the same chapter between the knowledge that results when the mind and the thing are brought into direct contact, and the knowledge that results when there is merely a representation of the thing, such as a report, description, or picture present to the mind. Manifestly there is a difference between knowing Niagara Falls from looking at it, and knowing it through another person's oral or written account, or even from a picture. But there is a difference in the apprehension of things; some I may know in both ways, some only in one way. Some external objects I know both directly and indirectly—through my own faculties, and through representation; but many more I can know only indirectly, since it is impossible for me to go to them

Two Spheres of Knowledge again.

or for them to be brought to me. Perhaps the object does not now exist, perhaps it is too distant for contact between it and me to be established, and perhaps it eludes me owing to my lack of expertness or skill in observation. I cannot directly know Nero's palace at Rome, because it perished long ago, or the Philippine Islands, because they are thousands of miles distant, or microbes, because I am not a microscopist. Again, internal objects, or the states of my own mind, I know only directly through consciousness; no one can report these objects to me faithfully, because no one but myself really knows them.

Teaching Moves in Both Spheres.

There are, then, two great spheres of knowledge, the first-hand and the second-hand. Next, it must be observed that education must move in both these spheres. The child first learns things directly, and so knows them for himself; he is an original investigator and discoverer, using his own eyes, ears, and other senses in acquiring sensations, and his own faculties of mind in working these sensations up into ideas. Such knowledge is the first that the child acquires. What is more, in the earlier period of a child's life, all that a second person can do to promote the knowing process is through the selection and presentation to him of appropriate objects; explanations he will not understand. But soon the child begins to learn at second-hand; that is, he begins to know things through the accounts that others give him, instead of the things themselves. These accounts he understands through his stock of facts and ideas gained at first-hand. Second-hand knowledge is, therefore, supplementary to first-hand knowledge. What the individual can learn directly, for himself, is not enough to answer his purposes. Besides, he can learn many things much better, and more quickly, indirectly

from others than he can learn them directly for himself; while through oral communication with others, through the newspaper, the magazine, the book, and the library, he can reënforce his meager but invaluable store of facts, ideas, and thoughts by drawing upon the vast store that the race has been some thousands of years in accumulating. In this way the feeble individual arms himself with the might of the human race.

The Child on coming to School.

Let us next inquire how all this affects the work of the teacher. The child comes to school with his own little stock of facts, ideas, and thoughts of men and things, some of them received at first-hand, some at second-hand, and some partly in one way and partly in the other. His mind is growing in both of the two spheres of knowledge, but more rapidly in the first than in the second sphere. He has as yet no other means of communicating with the store of collective knowledge or thought than oral language. This, it may be observed, is a fortunate circumstance, since the tendency and effect of it is to keep first-hand knowledge well in advance. Still, the normal child is eager to learn new things indirectly; he does not soon tire of pictures and stories of things and scenes that touch in any way his own experience.

The Teacher's Double Duty.

The simple facts that have just been told determine the work of the teacher as a mediator between the child and objects of knowledge. He is to promote, as best he can, the child's mental advancement in both spheres of knowledge. More definitely, he will, through object lessons and nature teaching, assist the child to increase his stock of object knowledge, or to come into closer relation with the external world; while through tales, stories, and ex-

planations he will help the child to increase his second-hand knowledge and so bring him into fuller communion with the experience of the race.

The First Duty not Involved in Study.

The first of these duties devolving upon the teacher lies outside of our proper field, and so will not occupy our attention save incidentally; but it should not be dismissed until one strong note of warning has been sounded. The teacher must not suppose that he has nothing to do in the direction of teaching real knowledge. Entrance into the school should not mark a sudden change or break in the child's mental life. Mental growth in the second sphere depends intimately upon the growth in the first sphere. Accordingly, the pupil's mental life should not be allowed to starve and dry up at the roots.

The teacher's main duty embraces two processes. The first of these is the oral communication of knowledge, which assumes the well known form of explanations of objects that are present, and of reports of objects that are absent. Oral instruction is the easiest, quickest, and cheapest way in which much knowledge can be acquired, and the best way also, provided it is properly correlated with real things, on the one hand, and books on the other. If we consider the present only, we must certainly agree with Dr. Bain's statement of the case.

Dr. Bain on Oral Teaching.

"Undoubtedly, the best of all ways of learning anything is to have a competent master to dole out a fixed quantity every day, just sufficient to be taken in, and no more; the pupils to apply themselves to the matter so imparted, and to do nothing else. The singleness of aim is favorable to the greatest rapidity of acquirement; and any defects are to be left out of account, until one thread of ideas is firmly set in the mind. Not unfrequently, however, and not improperly, the teacher has a text-book in aid of his oral instructions. To make this a help, and not a hindrance, demands

the greatest delicacy; the sole consideration being that the pupil must be kept *in one single line of thought*, and never be required to comprehend on the same point conflicting or varying statements."[1]

The Teacher to Teach the Language-Arts.

The other teaching process is to put books into the pupil's hand and show him how to use them. They are the great repositories of the knowledge that the race has accumulated. The meaning of this is that the teacher much teach the pupil to read and write. Time was when to teach these elementary arts was thought to be almost the sole function of the primary school; nor is it an exaggeration to call it now the most important function of that school. For the child, reading is the primary school art.

The First Lesson in Reading, the First also in Study.

Strictly speaking, the pupil's first lessons in reading are also his first lessons in study, as we are using that word. Reading, however, is of two kinds, or the word is understood in two ways. To teach a child to read, in the first sense, is to teach him the technical art that bears this name — to teach the mechanical apparatus of letters, words, sentences, and punctuation by which thought is conveyed; or it is to put into the pupil's hand the key that unlocks the printed page, the book, and the library. But in the second and higher sense, teaching a pupil to read consists in showing him how to use this key in unlocking these mysteries. The distinction is the same as that between any tool and the practical use of the tool. Fundamentally, then, the art of study is the same thing as the art of reading, as was explained in an earlier chapter. The teacher's practical question is how to teach reading in that intensive sense which constitutes study. We are not here concerned with the technical aspects of the subject.

[1] *Practical Essays*, New York, D. Appleton & Co., 1884, p. 218.

It will be remembered that the term "art" is used in two senses, — skill in some kind of activity or practice, and the method to which skill conforms. Hence the art of study is either skill in study or it is the method of study. Complete mastery of the art involves both elements, and so would complete instruction in the art. If a good teacher were to direct a boy through his whole course of study from the first primary grade to graduation from college, he would teach him both elements. But in what order would he teach them? The answer to this question, while plain enough, is still sometimes mistaken.

The Art of Study Involves Skill and Method.

How did all the simple arts originate? Obviously, in practice or doing, and not in rules or formal method. Historically, the race bleached cloths, tanned hides, constructed shelters for themselves and ornamented these shelters, and fought battles before they thought of the rules relating to these arts. And so with the individual man; he walks, talks, and sings before he knows anything about the appropriate rules or formal methods. The child cannot at first understand or reduce to practice even the simplest rules. He learns to talk by talking, to walk by walking, to sing by singing; that is, using the faculties with which Nature has endowed him, he imitates the similar actions that he sees his seniors perform.

Origin of the Arts.

Consider how it is with the technique of reading. There is an extensive body of rules relating to this art,— rules for the sounds of letters, for inflections and slides, for accent and emphasis, for articulation and pronunciation, for pauses and modulation. Now what does the teacher who teaches a child to read do with all this apparatus? Why, he simply

The Technique of Reading.

turns his back upon it. He calls the child to a chart containing a few simple words and sentences, or to a blackboard on which he writes the lessons as they are required. Or, he puts a primer into the child's hand, and begins to exercise him in the simplest elements of the art. The teacher sets an example here and corrects a fault there; he gives a few simple directions, but no rules until the work is far advanced. Thus the child learns to read by reading. In course of time he may learn the formal method of reading or he may not; but it is very clear that he will learn to read well, if he ever learns at all, before he knows much about rules and methodized procedure. Suppose this sensible practice were reversed — that the child were required to learn the rules before he learned to read — what would happen? This, unmistakably, that his progress would be greatly retarded, if, indeed, he ever learned to read at all. Reading is a consummate art, which the child learns by practice under intelligent direction. And so it is with the art of study. The child learns how to learn by actually learning, and how to study by actually studying; he cannot acquire the art in any other way. In this first stage, instruction in the art must run in the line of the pupil's work, — it must blend with the daily exercises of the school.

The Child Learns to Read by Reading.

What, then, is the teacher's function at this stage of the child's education? Obviously, to help the pupil to study or to learn. He is not to conceive of his duty as being accomplished when he assigns lessons and hears them recited. On the other hand, these things at first do not properly enter into his duty at all.

The Teacher's Function.

The teacher is to help the pupil to learn his lesson by

The Teacher to Help the Pupil to Learn.

explaining its language, by correlating it with his previous lessons and general knowledge, and by illustrating it from the outside world. He should not so much work *for* the pupil as work *with* him. He should guide him, not by directing him to go forward, but by leading him forward. He should not fall to lecturing him on the art, but see that he actually practices it, and practices it in the proper way. The teacher may, indeed, drop a hint here and offer a suggestion there that is taken from formal method, but nothing more at this stage of progress. The reflective or formal art of study belongs to a later stage of development. Talking about the art of study is no more teaching a young pupil the art than lectures about gymnastics will make an athlete. Habit comes from practice. There are indeed rules that apply to studies at this stage of knowledge; these the teacher should understand, and also see that the pupil observes them as far as possible, but he should, for the most part, keep them to himself. He should teach according to method, but not teach method.

PARALLEL READING.—*Common Sense in Education and Teaching*, P. A. Barnett. New York, Longmans, Green & Co., 1899. Chap. II. ("The Influence of Character"). Chap. VI. ("Audible Speech"). *The Limits of Oral Teaching*, John W. Dickinson. Syracuse, C. W. Bardeen, 1890. *Teaching the Language-Arts*, B. A. Hinsdale. New York, D. Appleton & Co., 1896. Chap. VII. ("The Language-Arts in the Lower Grades").

CHAPTER VII.

THE CHILD'S FIRST CONTACT WITH THE BOOK.

THE child that we have in view comes to school at the age of five or six years not knowing how to read. The book is more of a mystery to him than an Assyrian inscription would be to the common laborer. He cannot study the book because he cannot read it, and he cannot learn to read it without a teacher.

Teaching the Pupil to Read.

The teacher understands his task and sets about it; he works with the pupil. There is, in the ordinary schoolroom sense, no study and no recitation, but a single homogeneous exercise that is compounded of both. The pupil is trying to learn the mechanism of the printed page, or the technical art of reading, and also to grasp the meaning that this mechanism conveys. The teacher, on his side, does the best he can to assist the pupil in both endeavors. No matter what the method may be,—alphabetic, word, or phonic,—such is the process in all schools.

We have here exemplified the art of teaching in its simplest and purest form; two minds are active over the same matter, one striving to learn, the other to teach. It is the type of all teaching before the invention of writing and the composition of books. Then instruction was direct and personal, addressed either to a single mind or to a group of minds.

The Pure Form of Teaching.

But the introduction of books brought changes. For one thing, it tended to put the sources of knowledge and the teacher farther away from the pupil than they had been; and, for another thing, it ushered in the art of study. Perhaps the statement should be limited by the qualification that it was the original or primary sources of knowledge that were now removed farther away from the pupil. There had been learning from the time when minds and the world were first brought into contact, but there had been no study, in our sense of the term, previous to the invention of reading and writing. Dr. Bain is quite right when he says that our art "began when books began; when knowledge was reduced to language, and laid out in verbal compositions." The farther removal of the sources of knowledge and the teacher from the learner, were disadvantages that have never been wholly removed to this day; but, fortunately, they have been far more than compensated for by the great blessings that books have conferred upon men.

The Passage from Reading to Study.

In this early stage of instruction the teacher understands his business, and, we will say, performs it in a satisfactory manner. He teaches the pupil to read. The trouble begins, however, when the pupil has learned to read his reading lesson, or his reader, and when other books, as an elementary geography and arithmetic, are put into his hands. In one sense the trouble antedates this stage in the pupil's progress. That is, the simple homogeneous work of the primary class, which ran along one line, early began to divide into two lines of work, one of them called study and the other teaching, or the lesson and the recitation. The division was not sharp at first, but it became sharper as time went on; the pupil and the teacher began to sep-

arate slightly at the very moment when the teacher gave the pupil work to be done at his desk, or, as the phrase is, set him a lesson to prepare for recitation. Now this differentiation is quite in the nature of things and is altogether right and necessary. The pupil must learn to work by himself independently; this is the very core of the art of study; and he can learn to do such work only by doing it. He will never become an independent student without abundant practice of this kind. In fact, the pupil and the teacher must move on lines more or less divergent from an early period in the child's school life, until they finally separate, but they ought not to diverge too rapidly or separate too quickly. Let us see how it was in the old-fashioned district school that is sometimes praised with little discrimination.

Reading in the Old School.

In that school, in the first place, there were no proper books for teaching reading, no graded series of readers, such as are now found in every schoolhouse. The pupil learned his letters, his a-b,—abs, his words and short sentences, in the spelling book, and was then hurried, perhaps to the New Testament, and next to the English Reader. Up to the point when the pupil could read his short sentences in the speller, the teacher worked with him, but now the work suddenly divided into the lesson and the recitation. The pupil could stumble along his own way; a lesson was assigned him to prepare, and, this done, he was called up, either in class, or by himself, to read. In the recitation he received more or less help on the mechanical side; he was drilled in the sounds of letters, corrected in pronunciation and accent, and practiced in articulation and inflection; he heard his classmates, schoolfellows, and the teacher read, and learned something from them through imitation. But the

thought side, or the reading proper, was greatly neglected. Sometimes there were formal exercises in defining words, but the definitions were commonly synonyms or strings of words that took little hold of reality.

Arithmetic in the Old School.

In arithmetic the teacher gave the pupil some instruction in the fundamental rules, and then practically abandoned him to his fate. Henceforth the pupil, on coming to a new subject, first looked up "the rule;" then he began, in the most mechanical fashion, to "do his sums," as working the examples and problems was called. If he could get on alone, well; but if not, he called upon the teacher, who explained the rule or did the sum, generally in a purely mechanical manner. "To cipher through the book" was a notable achievement and considered quite equal to mastering arithmetic.

Geography in the Old School.

So the pupil brought his geography to the schoolhouse, and, perhaps without any conference with the teacher, fell to memorizing the first lesson. After the first recitation the teacher assigned the lessons, always in the order in which they stood in the book. The recitations consisted of dreary lists of questions and equally dreary answers. The pupil gave, from memory, definitions of the leading terms, located countries and bodies of water, described rivers and mountains, named capitals and other important cities, bounded states, and produced a variety of statistical information relating to distances, areas, latitude and longitude, population, etc. The total result, if the pupil had a good memory, was a collection of facts more or less valuable in themselves, but wholly undigested and furnishing in no sense a correct and lively picture of the earth or of any portion of the earth. If the pupil failed to find a lake or

town on his map to-day, he was told "to hunt it up" to-morrow. Indeed, the study of geography consisted largely of "hunting up things" that were of no earthly consequence to the pupil when they had been found.

Again, the pupil brought to the schoolhouse his copy-book, his ink bottle, and his goose quills; the teacher set his copies and made his pens; and this was often practically all the help that the pupil received.

Results of the Regimen.

It was much the same way with the other studies. The best work was perhaps done in spelling, because spelling was the most mechanical. There were teachers and teachers in those days, as there are now, but intelligent survivors of that dismal period will hardly deny that the foregoing account of the old district school is typically correct. There was much study, provided only the student had ability and ambition, and could get enough incidental help, at home and in school, to set him on his feet; but there was little teaching. On the whole, one is rather surprised that the pupils learned as much as they did learn. It must be confessed, in fact, that some of them did exceptionally well. Those who had strong intellects and determined wills, being thrown upon their own resources, developed their reserved strength and became independent students. But it is pathetic, even at this distance of time, to recall the boys and girls who never learned how to study and never got beyond the merest rudiments of an education. Some of them never even learned to read with much intelligence, and as for arithmetic, which was the other leading study, they acquired little more than the elementary operations and were by no means proficient in them. The old district school was of great value, but in studying this chapter of educational history the student must not allow

himself to be misled by the sentiment that has grown up around the "little red schoolhouse."

Separation of Teacher and Pupil.

The old school illustrates, in an exaggerated degree, one trouble with the new school: the pupil and the teacher are not properly adjusted to each other, and especially from the time the pupil is able to use his book. Pupil and teacher start out together on the same road, hand in hand. Soon their paths begin to divide, and the two companions to separate; and this process goes on until they part company. For the larger part of the time that they are together in the school they meet and touch hands, perhaps, only at the assignment and the recitation of the lessons. This system may properly be set up as a distant goal, but it has no place in the early stages of education. What the pupil needs when books are put in his hands as sources of knowledge, is that the teacher shall go along with him and help him to use them. What he frequently receives is a set lesson in a book, which perhaps interests him but little, but which he must learn and then recite. He receives little or no help when he most needs it; the person who should help him to learn his lesson really hears him recite it, or so much of it as he learns himself. He asks for bread and is given a stone.

Changes in the School.

I am not unaware that important changes have been made in the schools since the "good old times," as they are affectionately called. Instruction is far less abstract and far more concrete and real than it was fifty years ago. In good schools such subjects as primary geography and arithmetic are first presented in oral lessons, so that the pupil is not wholly ignorant of the subject when he first takes up the book. It is also true

that good teachers work with their pupils, showing them how to use their books. Nor am I forgetting that, as a rule, the most skillful teaching to-day is found in the primary schools. But to ingraft book instruction on oral teaching is a delicate art, and no one can claim that the teachers in our schools have generally mastered it. Sometimes the transition is too abrupt, too little help being given; then, again, the help that is rendered is given in such a manner as to engender the continued dependence of the pupil upon the teacher.

The Teacher's Help Need not Beget Dependence.

Perhaps it will be said that the plan here recommended will create, or tend to create, in the pupil constant dependence upon the teacher; that we have too much combination work at present rather than too little; and that this is the very source of the weakness in study and learning that marks the schools at the present time. There may well be too much help as well as too little. Moreover, the present trouble in the best schools is not that too much help or too little help is given, but that it is not rendered in the right way. Weakness and dependence are not necessary accompaniments of the assistance that the teacher renders the pupil; on the other hand, such assistance, if given in the right manner and measure, will rather engender strength and independence. The main difficulty at present is that teachers do not so much work *with* the pupil as work *for* him, which is fatal to good habits of study and to good scholarship. The teacher's function is not to fill up the pupil with knowledge as a demijohn is filled with water, but to enlist his faculties actively, and to guide them wisely, in the acquisition of knowledge. The late General F. A. Walker, in his celebrated Address on Arithmetic in the Boston Schools, said ·

"The notion that exercises, either mental or physical, prescribed for young children, should be often up to the full limit of their powers, and should at times exceed those powers, is distinctly false. The true gymnastic for the growing child is through exercises easy and pleasant, which lead insensibly up to ever higher planes of attainment, as the faculties are expanded and strengthened, according to their own law of growth, through gentle and agreeable exercise. Wherever fatigue, confusion, and the sense of strain begin, there the virtue of the exercise ceases, whether for promoting the growth of the powers or for the training and disciplining of the powers as they exist. Loss and waste—it may be much, it may be little—begin at this point, and go forward, from this point, at a constantly accelerating ratio."[1]

PARALLEL READING.—*Lectures on Teaching*, Sir J. G. Fitch. New York, E. L. Kellogg & Co., 1886. Chap. VII. ("Preparatory Training"). Chap. IX. ("The English Language"). *Teaching the Language-Arts*, B. A. Hinsdale. New York, D. Appleton & Co., 1896. Chaps. IV., V., VI.

[1] *Discussions in Education.* New York, Henry Holt & Co., 1899, pp. 251–252.

CHAPTER VIII.

THE STUDY–RECITATION.

THE two words "lesson" and "recitation" are so closely associated in the minds of teachers and pupils that either one almost necessarily suggests the other. Nor is it easy to define either word without referring to the other.

The first definition of "lesson" is anything read or recited by a pupil or learner, as a portion of a book assigned to a pupil to be studied or learned at one time. The word comes from the Latin *legere*, to read, and suggests at once the art of study, as that art has been defined in the third chapter of this work. Not all the definitions of lesson, however, involve the idea of reading or the idea of a book, but they all do involve the idea of something to be learned through effort. Still, the word suggests a book to the pupil, and I shall still continue to regard the lesson as a portion of a book assigned to a pupil to be learned at one time, or at least as a portion of knowledge that is assigned with reference to a book. Much of what will be said, however, is just as true of other lessons that are not taken from a book.

The Word "Lesson."

The school definition of "recitation" is the rehearsal of a lesson by a pupil to his instructor. The word is composed of the Latin *re*, again, and *citare*, to tell or to say, and means, according to its etymology, to tell or say

something a second time. In the case of a pupil, the first telling or saying occurs, or is supposed to occur, when he prepares his lesson. Frequently the word is used in a wider sense to denote any teaching exercise in which both the pupil and the teacher take part. But, properly speaking, the word implies previous preparation, and so is much narrower in its application than teaching. Socrates' conversational discussions and Jesus' similar teachings, while both highly educative, were in no real sense either lessons or recitations.

The Word "Recitation."

The two words are then correlative, and the two processes supplement one another. The lesson looks forward to the recitation; the recitation backward to the lesson. In their strict sense the two words mark the completion of the process by which the original homogeneous work of the school, which was learning on the one side and teaching on the other, has evolved into the study and the recitation of a portion of a book in which the pupil and the teacher touch each other only at two points; that is, at the assignment and at the recitation of the lesson. That this measurable separation of the teacher and the pupil is inevitable and desirable was clearly pointed out in the last chapter; as, also, that the separation should not be forced or be effected at too early a day. Instead of a teacher unduly hastening the differentiation, thus throwing the pupil almost wholly upon his books as a source of teaching, he should seek rather to prolong their closer relation, only taking care that the character of the work done shall keep full pace with the pupil's expanding powers. In other words, between the homogeneous work of the first primary grade and the

The two Words Correlative.

The Differentiation of Study and Teaching.

differentiated work of a later time should come a period marked by what I shall venture to call the study-recitation. As the name suggests, this exercise is neither all study nor all recitation, but is a compound of the two, and so does not differ from the original work of the teacher and pupil except in its greater difficulty and the fact that the matter is drawn from a text-book.

The Study-Recitation Defined.

Reference was made on an earlier page to the German schools. The American teacher, when his attention is called to these schools for the first time, is surprised by two circumstances: one the time that the pupils spend each day in school work; the other the excellent results that they achieve. The *lehrplan* or programme of a German gymnasium, for instance, includes some thirty hours of exercises a week, but our high school course includes about eighteen periods of forty-five or fifty minutes of such exercises, while the German boy on leaving the gymnasium is two years in advance of our boy on leaving the high school. The German elementary schools compared with our own present similar differences, save in the age of the pupils. Now what is the explanation of these strong contrasts?

German Schools Once More.

In the first place, the hours set down in the German programme cover both the study and the recitation periods, as we should call them, while our programme includes the recitation periods only. The fact is, however, that German teachers, unlike our own, do not hasten the division of school work into study and recitation, but rather seek to check it. The teacher and the pupil go on together learning and teaching just as they began until long after the period where our formal lesson and recitation appear. The Germans, in a word,

The Teacher in German Schools.

make much less of the book in the school, and much more of the teacher, than we are accustomed to do. Their great instrument of teaching is the study-recitation. This fact explains in great part the large amount of time that the school exercises cover per day or per week.

Superiority of the German Teaching.

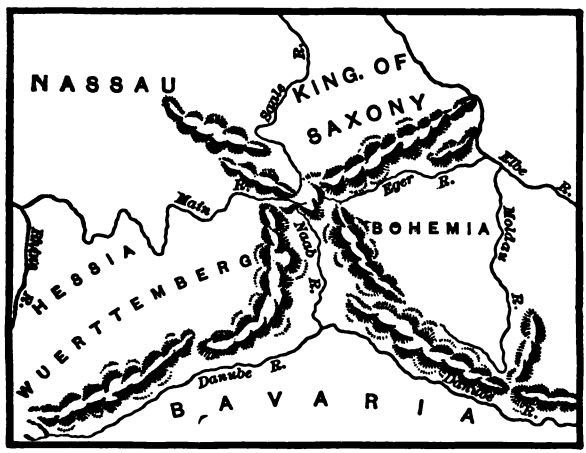
Secondly, the boys that pass through the German gymnasium, as has been already stated, are a more select body of scholars than the boys who pass through our high schools. Still, when all due allowance is made for this difference, there remains a considerable advantage on the German side. Again, no such reason can be given for the superiority of the pupils in the elementary schools. Perhaps it would be going too far to ascribe all this advantage to the superior teaching in the foreign school, as other elements may enter into the case, but, unquestionably, this is the main cause of such superiority. Moreover, there is good reason to think that the superiority of the German teaching consists largely in the constant employment, through a series of years, of the study-recitation. To explain more fully my meaning, I shall present some concrete examples of German lessons or parts of lessons, prefacing them with the remark that there are differences in schools in Germany as in the United States, and that the diversities of method and practice are considerable.

My first example will be an account of an exercise on the geography of Germany which I quote from the well-known work of Dr. L. R. Klemm:

"The teacher began by making a few simple lines representing the so-called 'mountain-cross' in Central Europe. After first drawing the Fichtel Mountains (see map), he added the Erz Mountains toward the northeast, the Franconian and Thuringian Forest toward the northwest, the Bohemian and Bavarian Forest toward the south-

east, the Franconian and Swabian Jura toward the southwest. A few peaks were mentioned, as were also the characteristics of these mountains. Thus, for instance, the silver mines in Saxony, the dense forests in Bohemia, the lovely scenery in Thuringia, the caves in the Jura, etc., came in for a few well-remembered remarks. The teacher always knew when to stop; he was discretion personified.

A Study-Recitation in Geography.



"Now, the teacher drew the four rivers which rise in the Fichtel Mountains, namely Main, Saale, Eger, and Naab—showing and indicating on the map into what main rivers they empty. A few important cities and the countries around the cross were named. All this information was partly given, partly asked for, as the case suggested.

"Now, the complete map, a printed one, was hung up and all the information just gained was looked up. Each item was noted and it made the children fairly glow with enthusiasm when they were able to corroborate the facts of the two maps. In a few points the map on the board was corrected, improved and completed; then the lesson closed, and now followed the recitation—that is to say, the pupils were called upon to state, in answer to leading questions, what they remembered of the lesson. My heart was filled with joy when I

heard them speak out, not like human parrots who had memorized, but like rational beings who had learned by experience. The hour was brought to a close by an imaginary journey all over the section the acquaintance of which they had just made. Many little items of information were added on this journey. Photographic views of rocks and mountain scenery were exhibited, and they proved to be of intense interest to these children, who had no opportunities of seeing a mountain 'in nature'." [1]

A Study-Recitation in Geometry.

My next example is an account of an exercise in geometry for which I am indebted to a professor of pedagogy in one of our universities. The first thing that the visitor remarked was that the pupils had no text-book in their hands such as an American teacher puts into the hands of his class (that is, a book of theorems and fully developed demonstrations), but only a book of theorems to be demonstrated by the pupils and teacher working together. The particular lesson on this occasion was the Pythagorean theorem: the square described on the hypotenuse of a right-angled triangle is equal to the sum of the squares described on the other two sides, and it proceeded somewhat as follows:

Teacher. What have we given in this proposition to base our work on?

Answer. A right-angled triangle.

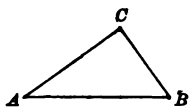


FIG. 1.

Teacher. You may draw such a figure on the board and letter it.

Teacher. What does our proposition say about this figure?

Answer. That the square described on the hypotenuse is equal to the sum of the squares described on the other two sides.

Teacher. Is Fig. 1. sufficient to illustrate this?

Answer. No.

Teacher. Why not?

[1] *European Schools*, New York, D. Appleton & Co., 1897, pp. 14–16.

Answer. The sides of the triangle must have squares erected on them.

Teacher. Complete the figure as you think necessary, adding letters, (Fig. 2).

Teacher. We will now try to prove our theorem. In each square what are the relations of the sides?

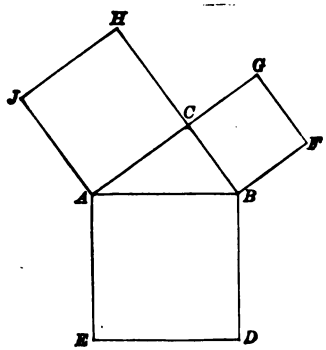


FIG. 2.

Answer. The sides of each square are equal.

Teacher. If we try to prove our theorem by triangles, can you suggest any lines that might help us? Perhaps the relation of the sides of the squares will help us.

Answer. If we draw diagonals from J to B and from E to C (Fig. 3) we shall have AC of one triangle equal to JA of the other, and AB of the second triangle equal to AE of the first.

Teacher. Will that prove the equality of those triangles?

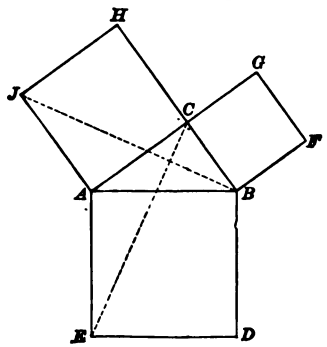


FIG. 3.

Answer. No.

Teacher. Why not?

Answer. When we have two sides of one triangle equal to two sides of another triangle, the triangles will not necessarily be equal unless there is an angle in one equal to an angle in the other.

Teacher. Have we such an angle?

Answer. The angle CAE of the first triangle equals the angle JAB of the second since each of these angles is made up of a right angle and the angle CAB.

Teacher. What can you say of line HC?

Answer. It is the continuation of CB because the angles ACH and ACB are both right angles.

Teacher. Can you see any relation between the triangle JAB and the square AH?

Answer. The triangle JAB has the same base, JA, as square AH, and the same altitude AC.

Teacher. What does that prove?

Answer. That the triangle JAB is one half of square AH.

Teacher. Let us draw CK intersecting AB in L (Fig. 4). Can you see any relationship between the triangle CAE and the rectangle AK?

Answer. It is the same relation that we have above; i. e., triangle CAE has the same base, AE as the rectangle AK, and the same altitude AL. Hence, triangle CAE is one half of AEKL.

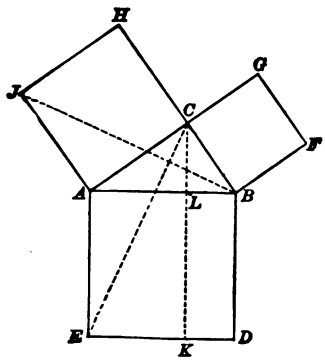


FIG. 4.

Teacher. What relation have we now between the rectangle AEKL and the square AH?

Answer. They are equivalent, as they are twice the equal triangles CAE and JAB respectively.

But it is not necessary to finish the demonstration. The teacher will get the idea.

Dr. Klemm gives a long description of a lesson in grammar that he witnessed. I shall quote a part of it only.

A Study Recitation in Grammar.

"A simple sentence was taken, such as 'Father called.' First the essential elements of the sentence, subject and predicate, were mentioned.

Teacher. What question does 'father' answer to?

Answer. To the question, 'Who called?'

Teacher. If I say 'Father came,' would the question be the same?

Answer. No, sir; it would be, 'Who came?'

Teacher. Is not the interrogative, the questioning word 'who,' the same in both questions?

Answer. Yes, and that word is always answered by the subject.

Teacher. We will note this in the corner of our blackboard thus: 'Subject answers to the question *who?*' But is that the only question the subject may answer?

Answer. If the subject is an animal or inanimate thing, we cannot ask '*who* does this or that,' but must say '*what* does?' As, for instance, 'The water bubbles. *What* bubbles?' We can therefore add the word 'what' to the rule, so that it reads 'Subject answers to the questions *who* or *what?*' (Teacher does so.)

Teacher. Why do you say 'who *or* what?' Why not "who *and* what?'

Answer. Because it cannot do both; it can only do one of the two.

Teacher. Are there any other questions to which the subject of a sentence may answer? Let us see. Open your Readers at page 17. Read, John.

John reads. 'The sun shines. Sun, the subject, answers to *What shines?*'

Fred reads. 'The physician hurried to the spot. Here the subject answers to the question *who?*'

Other sentences are looked up. All the pupils agree that *who* and *what* are the only questions to which a subject may answer.

Teacher. Then we have found a means by which we are able to detect the subject of any sentence.

Pupils are then led to state that the nominative is the *Who* or *What* case, and that the subject is invariably in that case. A note is made of the fact."

Next, the predicate was taken up in the same manner, and afterwards the modifiers. At the end of the lesson the blackboard contained notes of all the results that had been reached, which the boys copied down in their note-books. "The home lesson given out," says Dr. Klemm, "was to furnish a sentence from the history or reader which would illustrate these rules." [1]

The excellence of the German instruction in history is

[1] *European Schools*, New York, D. Appleton & Co., 1897, pp, 114, 115.

well known to all competent students and teachers of that subject. I shall therefore introduce a sketch of the work in history in the elementary schools of Baden, furnished me by a student who has studied in one of these schools.

A German Course in History.

First Year (Third Grade). Historical tales related by the teacher and repeated by the pupils several times.

Second and Third Years (Fourth and Fifth Grades). Historical tales continued, their number augmented. Brief outline of the history of the village or town and the district, the latter connected with the geography of the district. Short biographies of national heroes.

Fourth Year (Sixth Grade). Brief outline of Grecian and Roman history. Several parts dealt with in a more detailed way; e. g., the Persian wars, Alexander the Great, the wars between the Romans and Germans, the invasion of the barbarians, historical compositions embracing both biographies and tales. Historical essays in the reading book read and explained.

Fifth Year (Seventh Grade). History of the Middle Ages in Germany dealt with in the same way as the ancient history in the fourth year. Much stress laid upon the Crusades and the end of the Middle Ages. Historical tales, biographies, essays in the reading book, as in the fourth year.

Sixth Year (Eighth Grade). Modern times, especially in Germany. History of the Thirty Years' War, the Seven Years' War, the wars against Napoleon, and the war of 1870–71 dealt with in a complete manner. History of France from 1648 to 1815, chiefly the French Revolution. Tales, biographies, essays continued; longer compositions from the pupil than previously.

In teaching history no text-book is used; only oral instruction by the teacher, and a few notes taken by the pupils.

Such exercises could be greatly multiplied, but, as this is not a book of methods, I shall take leave of the subject by referring my readers to the books that deal with the pedagogical side of the German schools.

The method of the study-recitation is well illustrated by the laboratory method of instruction. The great value of such instruction is its concreteness and reality, since it brings the pupil into contact immediately, not with words and language, but with things. However, the teacher, if a competent one, does not turn his class loose in the laboratory to see what they will stumble upon, if left to themselves; he rather selects for his pupils, not only the line of work to be followed, but the particular experiments to be performed, and shows them how to perform them. He works with his pupils, just as the teacher of arithmetic, history, and grammar, at the same or an earlier stage of their advancement, should do. As the pupils progressively learn the art of the laboratory, he leaves them more and more to themselves. The same method is followed in teaching bookkeeping and arithmetic in some commercial schools; the class room is made a sort of laboratory.

The Laboratory.

Again, the *seminar* of the German university, the seminary of the American university, exemplifies the same ideas. The great value of this instrument of education is that it enables the experienced teacher to teach a limited number of selected students the best method of carrying on original investigations, including especially the choice and handling of materials. The seminary stands to the library in the same relation that the laboratory stands to nature.

The Seminary.

Perhaps some critics will charge me with parading as a discovery a method that is perfectly well known in American schools. Not at all; I am well aware that much work is done in our schools that answers in a general way to the study-recitation. Still, much of this work seems to me to fail at the vital

The Study-Recitation in American Schools.

point of grounding the pupil in the art of study, at the same time that he is immediately assisted in acquiring knowledge. Telling a pupil the contents of a lesson is not teaching him. The "telling," if telling it be, must be done in such a way as thoroughly to arouse the pupil's active powers of acquirement. Those persons who are most familiar with the facts will be the first to deny that the study-recitations which have been given above lead merely to an easy receptivity on the part of the pupil and the first to assert that they do inculcate the art of study. "'Come and let me show you how,'" says Professor James, "is an incomparably better stimulus than 'Go and do it as the book directs.'"

A physician and professor in a medical college, who has had much experience, also, as a common-school teacher, has remarked to me upon the eminent suitability of the terms "demonstrator" and "demonstrate" to express one of the teacher's most important functions. There are demonstrators of anatomy and physiology, he says, in the medical schools, whose business it is to *demonstrate*, that is, point out or make plain, the facts of the human anatomy and physiology. Why should not the teachers of geography, history, etc., be considered as "demonstrators" of their subjects in so far as it is their business to show to their pupils the facts comprising those studies?

PARALLEL READING.—*European Schools*, L. R. Klemm. New York, D. Appleton & Co., 1897. (Particularly those portions of the book that deal with the study-recitation). *The Teaching of Elementary Mathematics*, David Eugene Smith. New York, The Macmillan Co., 1900. (See Chap. X. for Methods of Teaching Elementary Geometry). *Educational Aims and Edu-*

cational Values, Paul H. Hanus. New York, The Macmillan Co., 1899. Chap. VI. ("The Preparation of the High School Teacher for Mathematics"). *The Study of History in Schools. Report to the American Historical Association by the Committee of Seven.* New York, The Macmillan Co., 1899. *How to Study and Teach History*, B. A. Hinsdale. New York, D. Appleton & Co., 1898. *Studies in Education*, B. A. Hinsdale. Chicago and New York, The Werner School Book Co., 1896. Chap. X. ("History Teaching in Schools").

CHAPTER IX.

THE STUDY-LESSON.

IT must not be supposed that the pupil's efforts to learn should end with the study-recitation. There is another and a more advanced stage of study that may be called the study-lesson, or simply the lesson in the customary sense of that word. The value or need of such an exercise, which has been more than hinted at already, calls for a word or two of emphasis.

The educated person, in the accepted sense, must know how to use books as means of instruction, discipline, and cultivation. He is, measurably speaking, an independent student. Reference may be made to the great efforts that have been made in recent years to bring the library into closer relation with the school. Thus, an excellent authority has said that Mr. S. S. Green, of Worcester, Massachusetts, had some years ago succeeded in linking the schools so closely with the public library of that city, of which he was the head, that he and the teachers, acting in concurrence, indirectly controlled the reading of the whole rising generation. To sketch the methods by which this great work had been accomplished is beside the present purpose, except to say that Mr. Green's part of it was to bring suitable books in abundance within easy reach of the school children, while the teachers of the city inspired them with

Schools and Libraries.

a love of good books and guided them in making their choice. The reading the pupils did alone.[1]

Now it is clear that the end set forth in the last paragraph cannot be reached as a rule, that is, pupils cannot be brought to use books independently, unless they are so habituated in the schools. A well-known American educator some years ago wrote: "At least three-fourths of all the time spent by a boy of twelve in trying to learn a hard lesson out of a book is time thrown away. Perhaps one-fourth of the time is devoted to more or less desperate and conscientious effort; but the large remaining portion is dwindled away in thinking of the last game of ball and longing for the next game of tag."[2] This is certainly a true presentation of the case, only I should hesitate to fix rigidly the age limit. Moreover, the fact stated is the great reason for the skillful employment in the school of the study-recitation. This impotence of the pupil to use books by himself must be overcome if he is ever to become a scholar; and it can be done in only one way — first, by preparing him to use books, and then setting him to use them himself. In making the transition from the study-recitation to the study-lesson some time will necessarily be lost, but the pupil will be abundantly repaid if he really gets a firm hold of the art of study.

Children to Learn the Use of Books in Schools.

The cardinal fact at this stage of the pupil's progress is that he must be left to learn his lessons practically alone with his books. Whether he will succeed or not in this endeavor will depend upon a number of circumstances, some of which

Value of the Study-Lesson.

[1] *Libraries and Schools*, Samuel S. Green, New York, Publishers' Weekly.

[2] *Methods of Teaching History*, G. Stanley Hall, Boston, D. C. Heath & Co., 1885, p. 206.

should be formally stated. First, however, a word of insistence upon the daily lesson as a factor in the school regimen at the proper stage of progress. First and last, this embraces three stages, — assignment of the lesson, study, and the recitation. The assignment of the lesson can hardly be treated in too practical a manner.

The Pupil Ready for the Lesson.

The first thing to be considered is that the pupil shall be ready for the lesson; or, to reverse the form of statement, that the lesson shall be adapted to the pupil. It is a well-known law of the human mind that in learning we proceed from the known to the related unknown. The meaning of this is that when once a start has been made we acquire new facts, ideas, and thoughts by means of the facts, ideas, and thoughts that we already possess. It follows, therefore, that, if the new matter which we wish to learn is too widely separated from the old matter which we have learned; or, in other words, if the interval between the two is too great, we can learn it only imperfectly, or with great difficulty, or possibly not at all, as the case may be. To ask a pupil to learn a lesson in any subject that is not connected with his former lessons, and especially his last one, is like asking him to jump to the top of a rock that is above his head. This law of mind lies at the root of the pedagogical doctrine of apperception.

The Graded School Idea.

What is more to our purpose, however, this law underlies all graded courses of study and graded schools, all graded series of lessons and text-books, and all graduated teaching. From first to last sound education leads the pupil gradually, that is, by grades, up the ascending heights of study or learning. The words "grades" and "grading" are derived from the Latin noun *gradus*, a step or pace. We get the

conception in a flight of stairs by which one ascends to an elevation that one could never reach if left to clamber up a perpendicular surface; or, better still, in a railroad track that ascends from a lower to a higher level by a moderate rate of ascent, or a moderate grade.

The Natural Order of Studies.

This conception of fitness or adaptation of the pupil to the lesson, or of the lesson to the pupil, is of first importance in education. The practical problem involved is a difficult one. Such questions as the natural order of studies—arithmetic, geography, history, and the like; the natural order of topics or divisions of the study; the length of the successive steps both in the study and in the course of study,—have received a great amount of careful attention from teachers and educators since the beginning of the common school revival, sixty or more years ago. Before that time little had been done to solve them.

Horace Mann on the Schools and School Readers of His Time.

For example, Horace Mann, who attended a district school in Massachusetts early in the century, afterwards complained bitterly that what was called the love of knowledge was, in his times, cramped into a love of books, because there was no such thing as oral instruction; that, moreover, books designed for children were few and their contents meager and miserable; and that, of all the mental faculties, the memory for words was the only one especially appealed to, while the most comprehensive generalization intended for men were given to the children instead of the facts from which these generalizations were formed.[1] Still more, Mr. Mann, characterizing in one of his reports the school readers that were in vogue in his schoolboy days, said:

[1] *Life of Horace Mann*, by his Wife. Boston, Lee & Shepard, 1891, pp. 11, 12.

"In many of the reading books now in use in the schools, the most pithy sayings of learned men, the aphorisms in which moralists have deposited a life of observation and experience, the maxims of philosophers embodying the highest forms of intellectual truth, are set down as First Lessons for children;—as though, because a child was born after Bacon and Franklin, he could understand them, of course. While a child is still engrossed with visible and palpable objects, while his juvenile playthings are yet a mystery to him, he is presented with some abstraction or generalization, just discovered, after the profoundest study of men and things, by some master intellect. . . . Erudite and scientific men, for their own convenience, have formed summaries, digests, abstracts of their knowledge, each sentence of which contains a thousand elements of truth that have been mastered in detail; and, on inspection of these abbreviated forms, they are reminded of, not *taught*, the individual truths they contain. Yet these are given to children, as though they would call up in their minds the same ideas which they suggest to their authors."[1]

Horace Mann and School Readers.

The same practice that Mr. Mann condemned in the schools of his time is sometimes seen in the Sunday-schools of our time. Pupils are filled with hard, dry, abstract lessons, which appeal to the logical faculties or to experience, when they crave incident, tale, or parable. The practical man, if of a religious turn, is apt to hold the prudential maxims of the Book of Proverbs in high esteem—maxims that sum up in the tersest form the reflections of sages upon the experiences of human life; maxims that are often paradoxical, and many of which are not universally true. But there can hardly be found in the Bible materials that are less adapted to the pupil's powers of digestion and assimilation, unless it may be the genealogies of the Books of Chronicles. Every qualified teacher knows full well how

Sunday-School Teaching.

[1] *Life and Works of Horace Mann*, Boston, Lee & Shepard, 1891, Vol. II. p. 536.

utterly at variance with the laws of the human mind and sound educational practice are the reading books used by young Horace Mann, and Sunday-school lessons for children selected from the wisdom literature of the Orient.

The Pupil Abreast of His Work.

1. It is assumed, then, at the outset, that the pupil is abreast of the lesson to be assigned in ability and attainments; or, at least, that he is within such distance that he can study it with advantage. If this is not the case, the remedy should be sought in his reclassification. Still it is not meant to discourage teachers from assisting pupils to overtake the class, who are not too far in the rear, but the contrary.

A Suitable Text-Book.

2. It is also assumed that the text-book is a suitable one for the pupil to use. We do not here raise the question of the relation of oral and book teaching, as we are dealing expressly with book teaching. If the book is not suitable, then the proper authority should supersede it with one that is suitable. But even if this is not done, or done at once, the teacher must still use some book, for few are the teachers who are able to dispense with it. Still sections of a book may be so faulty that the teacher who is able to do so will be justified in passing them by and teaching the subject orally.[1]

The Teacher to Reconnoiter the Field.

3. At the beginning of the term or semester, the teacher should look carefully over the work to be done before its close and proceed accordingly. This is not assuming that the metes and bounds of the terms are fixed, that they shall not be passed. The rule applies to the teacher who enjoys perfect freedom in the premises, for, if he is competent, and knows his subject and his pupils, he can judge in advance about

[1] For remarks on the use of text-books, see *Studies in Education*, B. A. Hinsdale, Chicago and New York, Werner School Book Co., 1896, pp. 80–84.

how much ground the class will cover in a given period of time and will seek to apportion it properly. He will have his landmarks ahead. In a system of public schools, however, it is no doubt necessary to have the work marked off year by year and term by term; but these divisions need not, and should not, be strictly observed.

4. In assigning the daily lesson, the teacher should consider carefully the character of the work to be done and adjust the lesson to the ability of the pupils.

The Lesson and the Pupil's Ability.

Paragraphs three and four may seem so simple and obvious as to make it unnecessary to cumber the page with them. The experienced superintendent, to his sorrow, knows better. The necessity for such elementary instruction may point to the presence of incompetent teachers in the schools, but the inference does not nullify the fact. The heedlessness that teachers, even of considerable service, sometimes show in these simple matters is discouraging. Some of them let the work drag along in the first part of the term and then, waking up to the situation, try to recover the opportunity that has been lost by driving at a reckless rate of speed to the end of the journey. Again, some teachers are vigorous in the beginning of the term or year; feeble in the end. Others seem never to understand that different portions of the subject differ greatly in difficulty, that one page may require more study than five or ten other pages, and that, therefore, the length of a lesson is no measure of the amount of work that its preparation involves. High-school teachers sometimes measure off a lesson in Cæsar or in Algebra with the page rule, without stopping to inquire whether the one is a piece of easy narrative or a difficult technical

Expansion of Points Three and Four.

description; or the other, part of an ordinary demonstration printed in full or a nest of hard problems. In opposition to these mistakes must be set the rule that the teacher should assign each day a fair day's work, and then see that this work is done. If the lessons are too light, the pupils are retarded in their progress and they become dissatisfied; if the lessons are too heavy, the pupils will not be able to finish them, and so must go over them a second time, losing thereby interest and courage. Everything depends upon the tone of the school. If its interest and courage are to be maintained, the pupils must accomplish something day by day—must, as a rule, actually do the work that is assigned them to do. Occasional failures are valuable as a discipline and a spur; but no teacher can hold a class up to the work on a regimen of failures. Success is the note of the good school. Too long lessons are harmful, even if the pupil finally accomplishes them, since he tends to lose his appetite for work. To keep pupils at work on lessons two or three days old is much like giving them dinners that have attained the same age. The measuring worm, as he ascends the wall, or moves along the ceiling, is no proper exampler for the teacher to follow in assigning lessons.

5. Before assigning the lesson for the next recitation the teacher should carefully inquire whether the pupils need assistance in preparing it and, if the answer is in the affirmative, he should furnish such assistance before they leave the recitation benches. Words in the lesson may need to be explained, points of difficulty to be set in a proper light, or important features to be pointed out. Frequent are the cases when a hint or two, a few suggestions, a short explanation, taking, perhaps, three or five minutes,

Rendering Help when the Lesson is Assigned.

will save the class from falling to pieces or from "flunking," as the college expression is, at the next recitation. Much depends upon the relation of the last lesson to the new lesson. Subjects and lessons as presented in text-books do not always ascend by an easy grade, at least as measured by the pupil's ability; some subjects and lessons hardly admit of such presentation. Not unfrequently the proper figure to apply to the new lesson would be to call it a precipitous cliff, up which the class is expected to climb. If, in such a case, the class are left unaided, the best scholars may be found, when recitation time comes, on top of the rock, but the majority will be found at the bottom.

Knowing how to Read.

6. Another fundamental requirement is that the pupil must know how to read and write, not only in the mechanical sense, but also in the intellectual sense; that is, he must know how to get thought out of the printed page with a reasonable degree of certainty and facility, and to express his own thoughts in written language. To put my meaning in another way, it is assumed that the pupil has, in a measure, mastered the art of reading as an instrument of acquiring knowledge, and the art of writing as an instrument of imparting knowledge. Upon these arts I shall not here enlarge, but only refer the reader to another work in which I have dealt with those important subjects.[1]

NOTE.—Some accounts of schools, as schools were at the beginning of the century, seem almost incredible. See for example the one that Horace Mann gave of his early education. Page 71.

Dr. Francis Wayland wrote a still more striking history of the teaching that he received from the master of a private school in New York, from which the following is an extract:

[1] *Teaching the Language-Arts.* New York, D. Appleton & Co., 1896.

"He used but one motive to obedience—terror. The ferule and the cowhide were in constant use. He never taught us anything; indeed, he seemed to think it below his dignity. I do not remember anything approaching explanation while I was at the school. A sum was set, and the pupil left to himself to find out the method of doing it. If it was wrong, the error was marked, and he must try again. If again it was wrong, he was imprisoned after school, or he was whipped.

"In other studies the text of the book must be repeated without a word of explanation. Geography was studied without a map, by the use of a perfectly dry compendium. I had no idea what was meant by bounding a country, though I daily repeated the boundaries at recitation. I studied English grammar in the same way. I had a good memory, and could repeat the grammar (Lowth's, I think) throughout. What it was about, I had not the least conception. Once the schoolmaster was visiting at my father's, and I was called up to show my proficiency in this branch of learning. I surprised my friends by my ability to begin at the commencement and to proceed as far as was desired; yet it did not convey to me a single idea. Years afterwards, when I began to study Latin, and found the relation of words to each other designated by terminations, and when the matter was explained to me, the whole of my past study came to me like a new revelation. I saw the meaning of what I had formerly, in utter darkness, committed to memory."[1]

PARALLEL READING.—*Mental Development in the Child*, W. Preyer. New York, D. Appleton & Co., 1894. *Psychology and Psychic Culture*, Reuben Post Halleck. New York, American Book Company, 1895. *The Essentials of Method*, Charles De Garmo. Boston, D. C. Heath & Co., 1889.

[1] *A Memoir of the Life and Labors of Francis Wayland*, Francis and H. L. Wayland. New York, Butler, Sheldon & Co., 1868, Vol. I., pp. 24–25.

CHAPTER X.

ATTACKING THE LESSON.

A quarter of a century ago the late Dr. Paul A. Chadbourne, President of Williams College, delivered an able address before the American Institute of Instruction which he entitled "Waste of Labor in the Work of Education." He began with pointing out that, while education is supposed to prevent waste of labor, it is itself accompanied by a great amount of such waste. He found the principal sources of this waste in imperfect teaching, teaching unimportant things, want of thoroughness, a misapprehension of the real purposes of study, errors in text-books, bad classification of pupils and students, irregularity of attendance, want of enthusiasm on the part of the teacher, and neglect of moral training. These are all undoubted sources of waste, and still others can be enumerated.

Dr. Chadbourne on Waste in Education

There are several sources of waste in the schoolroom—waste, that is, of the pupil's time and energy. One of these sources is ill-constructed courses of study; a second, ill-chosen text-books; a third, ill-assigned lessons. And then, when these are stopped, if stopped they are, there remain still others, as the study-lesson, the recitation-lesson, the review, and the examination. Now it is in the study-lesson that the pupil shows his mastery of his art. It is here that he reveals his ability or inability to study and

The Study-Lesson a Source of Waste.

learn his lesson. The study-lesson is therefore the greatest of all the possible sources of waste in the school-room. Some of this waste is unavoidable, as the pupil must, in a sense, learn to save time and effort as he learns to save money,—by wasting; but the amount of such waste in the schools at the present time is far in excess of all reasonable requirements on this score.

Careful investigation shows that the waste which accompanies the study-lesson is due to one of two causes, or to both of them. One is lack of ability properly to attack the lesson, and the other lack of ability to sustain the attack when made. Again, these two defects are due to different causes. Inability to make the attack, or to make it as it should be made, is due primarily to ignorance; while inability to sustain it is due primarily either to lack of interest or to a feeble will. Ignorance here means failure to see and to grasp the question or questions that the lesson holds out to the learner. The two defects are not necessarily connected, since they spring from different roots, but they tend to run together and are often, if not commonly, found in conjunction. If a pupil fails to master his lesson because he does not know how to attack it, his failure will generally tell disastrously upon his interest or courage; while feeble interest or courage shown in following up an attack is almost sure to appear in the attack itself.

Ignorance and lack of Interest and Courage.

It is, therefore, quite clear that these are important matters, deeply concerning, first, the teacher and then the pupil. Much that has been said in preceding chapters relates more or less directly to attacking the lesson; but it will be well, even at the cost of partially retracing our steps, to devote a special

The Phrase, "Attacking the Lesson."

chapter to the topic. Afterwards, sustaining the attack upon the lesson will occupy our attention through a series of chapters, which will not, however, bear that name. Let us form a clear idea of what the phrase, "attacking the lesson," means.

What the Lesson is About.

The first rule for the guidance of the pupil is to find out the subject of the lesson. What is it all about? is the first question to be asked. If the pupil has been well trained in the study-recitation he will, from habit, as well as interest, ask this question; and, if the lesson has a fair degree of unity and completeness in itself, he will have little or no difficulty in answering it. For example, the lesson is on Washington's Virginia Campaign of 1781; on the method of solving a quadratic equation; or on the attributes of the adjective. Some persons may think this rule is too obvious to be put in a book. Experienced teachers, however, know that pupils in the higher grades of the elementary schools, and in the high schools too, come to the recitation bench with only confused and general ideas of the subject of a lesson,—to say nothing of the subject-matter—when they suppose they have mastered the lesson. Relative to these points, there is now a vast amount of blundering and heedlessness in the schools. Pupils begin to figure on mathematical questions and problems before they have half read them; or they begin to analyze sentences in grammar without having at all grasped their meaning. This is often seen in written examinations.

Barnett on "Quizzing" Lessons.

We shall go back for a moment to consider the study-recitation. Here it is the teacher's first business to place directly and clearly before the pupil's mind the end or aim in view. Mr. P. A. Barnett, condemning the practice of those "trained"

teachers who, in giving a set lesson, think it necessary to beat about the bush, in order to get the class to guess what they are driving at by a process recalling the "animal, vegetable, or mineral" game of our youth, gives the following wholesome counsel:

"In fact, the pupils begin by putting themselves into a thoroughly false attitude. They enter on a kind of guessing competition, striving to find out what is in the teacher's mind, *what he wants them to say.* This is bad teaching. Once upon a time, for instance, a master was about to give a lesson on marble to some small boys, and began, for some occult reason, by asking his class to tell him the names of various stones. He thus, 'elicited,' hearthstone, bluestone, granite, kerbstone, sandstone — everything but marble. At last he tried another attack. 'Do you ever,' he asked, 'go for walks on Sunday — in the churchyard?' 'Yes, sir,' said a little boy. 'And what do you see there?' 'The tombstones.' 'Well, don't those remind you of another kind of stone? Think, boys think!' 'Please, sir, brimstone.'"

Exceptions to the Rule.

Mr. Barnett very justly says this teacher should have told his boys without any preface that he was going to give them a lesson on marble; there was not the least reason for beginning his work by getting them to guess what was in his mind. He is equally right in saying that nothing can be gained by concealing from the class the immediate object of the instruction. He makes an exception in the case of very young children, with whom the teacher, as a whet to the appetite, may start with a little brief mystery before he produces the apple which is to be the subject of the lesson; but even here he cautions the teacher not to tire out the slender powers of the children by setting them to guess-work before he comes to real instruction. Perhaps another exception may be made. With older pupils the teacher may sometimes, in order to arouse curiosity or to enkindle

interest, keep the subject dangling for a little time before their eyes; but the practice easily degenerates into abuse. For the kind of lessons that he has before his mind, Mr. Barnett's model questions are right: "*Who can tell me anything about this apple? . . . the equator? . . . Milton's versification?*" [1]

Subdivisions of the Lesson to be Seized.

The next rule is that the pupil should seize the leading subdivisions of the lesson. The author of a text-book, if he understands his business, will present his matter in such a form as to facilitate the process. He will, for example, express the general subject of his chapter in the title or heading, and then treat its leading features or subdivisions in single paragraphs or closely related paragraphs, each with its own side-head or sub-title. If the author has omitted these convenient aids — "handles" they may be called, that enable the pupil to take hold of the lesson — the teacher should show him how to make them for himself. Thus the fourth of Sir Joshua Fitch's *Lectures on Teaching* is on the subject of Discipline. The side-heads are "The Teacher as an Administrator or Ruler," "Obedience not to be had by Demanding It," "Commands to be Well Considered before They are Given," and so on to the end of the chapter. To fix the subject of such a lecture and the sub-heads firmly in mind is to make an attack upon the lesson that promises the fullest success.

Central Points to be Carried.

The next fact to be stated is that most lessons present a few points which are so central that they are keys to the whole subject; while the next rule is that the pupil should seek to discover such points and make them his own. We are using a military

[1] *Common Sense in Education and Teaching.* New York, Longmans, Green & Co., 1899, pp. 1–11.

metaphor. When General Grant had carried Missionary Ridge, the whole Confederate position far to the right and far to the left fell easily and speedily into his hands.

Help at the Assignment of the Lesson.

Returning to an old topic, while the pupil should be prepared by the study-recitation to attack the lesson, still, over and above such preparation, the teacher will often find it necessary to render special assistance when the lesson is assigned, as has been remarked in the last chapter. As there stated, in substance, a few words serving to focalize the pupil's mind upon the proper point or points of attack will make all the difference between a lesson well prepared and a total failure. Teachers do not always appreciate the difficulties that new lessons offer to the minds of pupils, and especially when the specific subjects are new. Many lessons may be likened to balls that are too large for the catcher's hands, so that he is unable to seize and hold them.

Perhaps the main point of the present chapter can be made still more definite and concrete. Let us take a problem in mathematics.

Our word "problem" is from the Greek noun *problema*, which comes from the verb *proballein*, to throw forward.

A "Problem."

The problem is conceived of as something that is thrown forward by a questioner to an answerer. The two stand in the relation of the pitcher and the catcher in a game of base-ball. The pitcher is the teacher or author; the catcher is the pupil. And the pupil catches the ball when he understands the problem, or sees what it means, no matter whether he can solve it or not. Similarly, many other lessons may be looked upon as balls thrown to pupils for them to catch.

It will be seen, of course, that the attack upon a lesson is

always an act of analysis. The mind bites into the lesson, so to speak, with a view to separating it, as the teeth bite into an apple.

Once more, the successful student must have correct ideals of study and of preparation. He must know what is required of him; must know when a lesson is prepared, or what preparation consists in. It is not only possible but easy, as experienced teachers know, for pupils, especially if they have affluence of language, to talk or write quite entertainingly about things that they do not at all understand. Knowing *about* a thing is not the same as knowing the thing. A pupil may have considerable knowledge about the crusades, or about geysers, and not have a clear idea of what a crusade was or a geyser is. No rule relating to the subject is more important than that pupils shall know what they are doing.

Correct Ideals of Study and Preparation.

It may be said that in these matters much depends upon the subject and the study, and that there are different ideals of preparation rather than a single ideal. This is perfectly true. Manifestly the pupil who should prepare his lessons in arithmetic, history, and grammar in the same way would make a mess of it. Mathematics, and to a great extent the sciences as well, present to the mind definite questions to be answered, or strict chains of reasoning to be followed and mastered. No element can be omitted in either case without vitiating the whole process. To a logical mind the method is perfectly intelligible. At the same time, this method is wholly inapplicable to history, geography, or literature. For example, a lesson in history is something like a landscape, a learner of the lesson like a painter. The painter, after due examination, selects

Such Ideals Vary with Studies.

some favored spot from which he can take in the whole scene; the ground rises and falls; the river winds here, and the road runs there; field and wood, village and farm, fill in the view, as it presents itself to his eye. He does not attempt to reproduce on his canvas all that he sees, but only those features of the scene which give it character and individuality,—what may be called the essential elements of the landscape. The amount of filling in will depend upon the scene itself and the size of his canvas. No doubt this illustration may be so pressed as to make it teach error. My contention is only that the fruitful study of the history of a country or an age leaves the pupil's mind in much the same state that the painter of the landscape leaves his canvas.

Mathematics and History.

There is one rule which is of universal application, viz.: the teacher must remember that words are not ideas. It is true enough that words, in a secondary sense, are things, and so are proper subjects of study, as in etymology, but the primary office of words is to convey meaning. Montaigne said that "to know by heart is not to know," while learning by heart is equally not to learn. There are indeed certain exceptions to be mentioned hereafter. To some minds the verbal clothing of ideas and thoughts will cling to them as the bark clings to a tree, or the skin to an animal, but this is not true of most minds and it is not desirable that it should be. The ordinary pupil will emphasize either substance or form, and if he emphasizes form he will not emphasize substance. After his teaching days were over, General Garfield used to tell a story of a member of a class in surveying that he had taught. The text-book used contained a picture and a detailed description of a theod-

Words not Ideas.

olite, both of which the class were required to study since the school did not possess a real theodolite. The student in question, on being called upon, gave a full description of the instrument and then sat down, having made what was considered a very brilliant recitation. But before the close of the hour some incident, as a remark by the student, or perhaps a question by the teacher, revealed the fact that this student had no idea whatever of the construction or the use of the instrument that he had described so minutely. He had extraordinary power of verbal memory, and had simply memorized the author's description as he would have memorized a declamation. The language had adhered to his mind just as paint will sometimes adhere to the hand.

General Garfield's story.

The teacher must remember that the pupil's attack upon the lesson is different from the teacher's own attack. The pupil is interested in the academical, the teacher in the pedagogical, view of the lesson. The aim of the one is to learn the lesson, the aim of the other to teach it. The academical view necessarily precedes the professional one. Even the normal school, when it teaches academical studies, has its own way, or should have its own way, of looking at them. It is the work of the normal school, as Dr. Harris has said, to lead the student to reëxamine all his elementary branches in their relations to the higher ones. He goes on to say:

The Pupil's Attack and the Teacher's Attack upon a Lesson.

"The Normal school, therefore, took up just this work at the beginning, and performed it well. It induced in the young men and women, preparing for the work of teaching, the habit of taking up the lower branches in their relations to the higher—taking them up constructively, as it were. For, to study arithmetic in the light of algebra and

Dr. Harris on the Normal School.

geometry is to study it constructively. Its rules are derived from algebraic formulæ, and are to be demonstrated by algebraic processes. So the details of geography have their explanation in the formative processes of land and water as treated in physical geography, and the sciences of which it is a compend. Of course this demands a high standard of preparation in those who enter the Normal school. The higher the better, for they should be able to review the lower branches in the light of all human learning."[1]

This is true enough in its own place, but the teacher must not forget to return to the place of beginning. The successful teacher is always able to place himself at the pupil's point of attack.

Regimen of the School Forms the Pupil's Character.

The character of the pupil is formed, so far as the school serves to form it, by the regimen and tone that are habitually maintained. Every teaching exercise should be considered under two aspects: one the direct contribution that it makes to the pupil's knowledge; and the other its disciplinary results, or its effect upon his habits and character. The two results, while causally connected, are not measures one of another. Now the good school generates courage and self-reliance, which it can do only upon the condition that the pupils shall succeed in their lessons far more frequently than they fail. It is well enough for the pupil to be "stumped" occasionally, and there is a discipline in temporary failure, perhaps in permanent failure, but success should be the habit of the school. Moreover, success cannot be the habit if too much is required of the pupil. The regimen under which the child grows up should not be flabby, but relatively strenuous. Still, in the early period of character forming,

[1] Oration delivered at the semi-centennial celebration of the State Normal School, Framingham, Mass., July 2, 1899.

he should be shielded as far as possible from excessive demands upon his attention, his faculties of judgment and thinking, and especially his power to resist temptation; nor should he be overexposed to them in a later period, when his character is better formed.

PARALLEL READING.— *Waste of Labor in the Work of Education*, Paul A. Chadbourne, (Circulars of Information of the Bureau of Education, No. 4). Washington, Government Printing Office, 1885. *The School and Society*, John Dewey. Chicago, University Press, 1899. Lecture III. ("Waste in Education").

CHAPTER XI.

THE RECITATION-LESSON.

WHAT the recitation means to American teachers and writers on teaching has been explained in a general way on an earlier page. How important they conceive it to be is shown by the place that is accorded to it in the school and in books and lectures on teaching. It is no exaggeration to say that a large majority of them look upon it as the principal feature of the school. Authors who have never a word to say about the art of study have whole chapters on the recitation, while a great many teachers, failing to render their pupils needed assistance in learning their lessons, see the fulfillment of their duty in assigning lessons and hearing recitations.

The Recitation in American Schools.

It is, therefore, curious to observe that English teachers and writers on teaching never use the word "recitation" at all in our familiar sense of it. A leading London journal, speaking of a new American book on education not long ago, thought it necessary to explain to its readers the author's use of the word. English teachers have the thing but not the name; they call it the "lesson."

Unknown in English Schools.

It may be said that if English teachers have the thing it cannot matter whether they have the name or not. I am not so sure that this is the case, but rather think that they have the advantage over us. First, I am not quite

sure that they do have precisely the *same* thing, but however that may be, it is certainly easier for the English teacher to avoid the fatal habit of thinking that his great function is to conduct recitations or "to hear lessons" than it is for the American teacher. If we could in some way get rid of the word it would be easier to free the American school from the slavery that the recitation now imposes upon it. Since, however, that is undoubtedly impossible, we must make up our minds to accept the name with all its unfortunate associations, and do what we can to improve the recitation itself. So I submit to my fate, and contribute my chapter to the literature of the subject.

The Recitation should not be thrown out.

And first, I must emphasize the fact that the recitation should not be thrown out of the school. This becomes apparent when it is remembered that the recitation, or recitation-lesson, as I have ventured to call it, is an exercise in which the pupil meets his teacher to report what he has learned in the study-lesson, and to receive needed instruction in connection with the subject. In view of what was said early in this book, it should not now be necessary to do more than repeat that such an exercise has no place early in the school course, and that often the mistake is made of throwing it too soon and too far to the front. At the same time, the study-recitation, valuable as it is, will not do either one of two things, which must, however, be done at the same time,—ground the pupil in knowledge or ground him in the art of study. There comes a time in the progress of the pupil when he can learn more in half an hour in the study-recitation than in an hour in the study-lesson, and yet should make the present sacrifice since it is essential to future progress.

The pupil will never become an independent worker unless he learns to work independently; he will never get much real hold of the art of study as an instrument save by practicing that art. Hence the great importance of the transition from oral teaching to the book, and of the passage from the study-recitation to the study-lesson and the recitation-lesson. Perhaps at no point is the teacher's art more severely taxed. So much for preliminaries.

Attacking our subject directly, we find that it can be separated into two main subdivisions—aim and method, or the objects of the recitation-lesson and the means or steps by which those objects shall be reached. The relations of the two topics, and of the order in which they should be treated, are too obvious to call for formal remark.

Primary Objects of the Recitation.

I. THE OBJECTS OF THE RECITATION-LESSON.

This topic opens a considerable breadth of educational territory, but we must confine ourselves to essential features. The main objects of the recitation-lesson are the following:

1. To give pupils an opportunity to report to their teacher what they have learned of the lesson previously assigned, or to reveal to him what they know of the subject. That is, to enable them to show how they have employed their time, or to give an account of their stewardship. Here the pupil holds the floor. That this is the first object of the recitation results from the relations of the exercise to past lessons and future lessons.

Reporting.

2. To enable the teacher to discover and correct the

pupils' ignorance of the lesson, including their errors and misconceptions. The teacher now becomes more prominent than before; he not only receives but also criticises and corrects the reports that the pupils make him.

Correcting.

3. To enable the teacher to add to the pupils' knowledge of the lesson or subject, by means of a more thorough discussion of the knowledge that the pupils have themselves acquired, and by producing new knowledge. It is clear that the teacher now becomes still more prominent than in the function of criticism and correction.

Expanding.

4. To enable the teacher to prepare the way for the next lesson and recitation. To be sure, the ends already named constitute a part of such preparation, but it is only a part. Mention must also be made of the assignment of the next lesson, such explanation as it may call for, and any special knowledge that the pupil may need in the ensuing study-lesson.

Preparing.

5. To enable the teacher to observe the ways in which pupils do their work, and to correct them when necessary; in other words, to give the teacher an opportunity to see that, along with knowledge, his pupils are also getting the art of study.

Study of Pupils.

6. To enable the members of the class to compare their facts and ideas, to bring their views of the lesson together, to supplement one another's knowledge, — in a word, to enter into that legitimate emulation without which a good school is impossible. This is by no means the least benefit flowing from the recitation; perhaps some would say it is the greatest.

Pupils' Comparisons of Each Other's Results.

These are the primary objects of the recitation-lesson, stated in their natural order. They have been presented, it will be observed, in terms of knowledge rather than of power, in the phraseology of objective not of subjective pedagogy, for the very obvious reason that for the present purpose this is the most effective form of statement. The propositions, however, can be readily expressed in the other form.

Again it will be seen that the recitation, like man himself, looks before and after, and that, like him, it looks after for the sake of before. What the pupil has done, from the teacher's point of view, is valuable chiefly because it is the platform on which he will stand while carrying his structure still higher.

Looking Before and After.

The principal subordinate ends of the recitation can only be enumerated. They are such as these: to enable the teacher to judge of the efficacy of his method and to test his own skill; to furnish a valuable language lesson; to give the pupil an opportunity to classify and expand his thoughts through expression; to develop confidence and self-command in the pupil; to imprint the lesson more deeply on the mind; to develop quickness of apprehension and thought; to stimulate the pupils to renewed activity, and to disclose to the teacher their mind and character.

Subordinate Ends.

II. STEPS OF THE RECITATION-LESSON.

Here, as before, the view must be confined to the most important features of the subject.

The first question is whether there is any universal method, or any order to which all recitations, or all good recitations, must conform.

Method of Conducting Recitations.

Stated in this way, the question must be answered in the negative. Much depends upon the subject, the stage of the subject that has been reached, the pupil, the teacher's aim, and the means at hand. To quote from Mr. P. A. Barnett:

No Inflexible Method.

"There are no 'methods' which we can apply rigidly to stated cases. The only infallible prescription is that the teacher should be infallible; for so we come back to the greatest of all teaching rules: to become good teachers we must teach well. The best we can do is to take the pupil by the hand and to feel the way *with* him, not merely *for* him."[1]

And yet we must agree with the common opinion that, as this writer expresses it, "in the midst of all diversity the true type of teaching is constant. The diversity arises inside the universal scheme, which all good teachers follow; the differences are in details, which are modified to suit individual cases, but in details only. The main process alters only in so far as its stages are more explicit or less explicit."[2] This type is universal because good teachers have always tended to approximate it, but few of them have given it an articulate form. In fact, it was first formulated by Herbart and his disciples, in what they called the "formal steps of teaching," viz.: preparation, presentation, comparison, generalization, and application. These steps will now be briefly explained.

But a General Type.

First, however, the aim of the lesson should be clearly stated to the pupil, because (1) the pupil's mind is thus focalized upon the subject; (2) the pupil is placed in the midst of a new circle of ideas that claim his attention and which at once call up

Aim of Lesson Stated.

[1] *Common Sense in Education and Teaching*, New York, Longmans, Green & Co., 1899, p. 6.

[2] Ibid, p. 7.

his old and related ideas; (3) expectation, which is an important form of interest, is excited, while (4) the child, stimulated by a clear perception of what he is expected to do, makes an effort to do it, or to use his will.

1. *Preparation.* — This consists in freshening up and calling clearly to the mind of the child older ideas that bear upon the new ones, and, by their similarity, explain and assist the understanding of the new. In the language of our special subject, the relation of the last lesson to the present one is made plain. In this way the soil of the mind, if the expression may be allowed, is gotten ready for the new seed. This step consists plainly enough of analysis.

Preparation.

2. *Presentation.* — This step involves joining on the new lesson to the old one, or the new ideas and facts to the old ideas and facts; or, to employ the former figure, the new seed is cast into the ground which has been prepared for it.

Presentation.

3. *Comparison* (also called *Association*). — This step brings together in the mind the newly-won ideas, compares them with one another, with older ideas and with additional new ideas that will be presented—it compares the new and the old and combines them into one complete whole. This step is analytic in the beginning, but synthetic in the end.

Comparison.

4. *Generalization* (also called *System*). — This means the inference from the data now present in the mind of a principle, law, general statement, or what in matters of practice is called a rule. This is an act of induction, and, in the narrow sense of the term induction, is synthetic, since the particulars are made to converge in one general truth.

Generalization.

5. *Application* (or *Practical Application*). — The fourth step leaves the mind in possession of a general or abstract idea. But general ideas are not of practical value until they are applied to new cases or particulars. And teaching is incomplete until the pupil is shown how to make such applications for himself. This step, which is purely deductive, will claim our attention again in a future chapter.

Application.

Such are the steps involved in the complete teaching process. It is almost needless to say that many teaching processes do not embrace all these steps, and so are incomplete; they are, for the time, defective at the beginning, middle, or end. Still more, it is often perfectly proper that teaching processes should not embrace all these steps since that is neither possible nor necessary. These are abridged teaching processes.[1]

We may now put the three learning exercises of the school and the five formal steps of teaching in parallel lines. It is plain that the steps may all fall into the study-recitation, although that is not so much the proper place for applications as it is for the earlier steps. Plainly, too, the five

[1] A recent review of Mr. Barnett's, *Common Sense in Education and Teaching*, illustrates the five formal steps in the following manner: "Take, for instance, a proposition of Euclid. The first step, that of Preparation, is found in the preceding propositions. The second step, of Presentation, appears in the general enunciation, followed by the construction and the application of the enunciation to that construction. The third step, Comparison, follows when the subsidiary lines are drawn and the different parts of the figure are considered, with the result for the construction. The fourth step, Abstraction, is taken when it is considered that the like would be true of any similar construction, so that the proposition may be stated in general terms. But the theorem is certainly not yet understood, unless the pupil is now able to take for himself the fifth step, that of practical Application."—*The Nation*, No. 1811, p. 210.

steps may all occur in the study-lesson, if we may speak of the pupil as being his own teacher. And, finally, it is equally plain that all the steps may be taken in the recitation-lesson, although most of the work involved in preparation, and much of that involved in presentation, falls naturally into the study-recitation and the study-lesson.

Learning and Teaching in Parallel Lines.

Intimately connected with the recitation is the art of asking questions. Questioning is sometimes called a probe with which the teacher examines the pupil's mind as a surgeon examines a wound; and sometimes a plummet with which the teacher sounds the depths of the mind, as a sailor measures the sea with his lead. It is indeed both a probe and a plummet, but it is far more — it is a magician's wand with which new knowledge is summoned into life. Skillful questions cause the pupil to define his facts; to clarify his ideas; to put facts and ideas together in new relations; to compare; to judge, and to draw inferences, — mental operations which develop our higher knowledge. Socrates, borrowing the name from his mother's trade, called his method maieutic, and the instrument with which he assisted his pupils to give birth to the children of their minds was questioning. We must, therefore, pay more than passing attention to this art.

Art of Questioning.

Sir J. G. Fitch recognizes three kinds of questions, the preliminary, or experimental; the one employed in instruction; and the one employed in examination; and defines them as follows:

Three kinds of Questions.

"There is, first, the *preliminary* or *experimental* question, by which an instructor feels his way, sounds the depths of his pupil's previous knowledge, and prepares him for the reception of what it is designed to teach.

"Then, secondly, there is the question employed in *actual instruc-*

tion, by means of which the thoughts of the learner are exercised, and he is compelled, so to speak, to take a share in giving himself the lesson.

"Thirdly, there is the question of *examination*, by which a teacher tests his own work, after he has given a lesson, and ascertains whether it has been soundly and thoroughly learned." [1]

The first of these questions goes naturally with what the Herbartians call preparation, the second with presentation, the third with comparison. While all three may be used in the study-recitation, the first and second fall there more naturally. Again, the third question belongs especially to the recitation-lesson, and here it is employed mainly in testing what the pupil has learned. The instruction question is serviceable in imparting real knowledge. The eminent teacher referred to by Fitch, who said he first questioned the knowledge *into* the mind of the child and then questioned it *out* again, used, in the first instance, the instruction question, and in the second one, the examination question.

The Use of Each Kind.

As to the character of the teacher's questions, we need only repeat the same writer's admonitions, that such questions should be clear, terse, pointed, and capable of being answered not with a mere yes or no or with a single word. They should be continuous, and such that the pupil may fairly be expected to answer them.

Still another rule is that the questioning should not all be confined to the teacher. This rule, Sir J. G. Fitch puts in a paragraph so admirable that I shall venture to quote it in full:

Fitch on Questioning.

"The art of putting a good question is itself a mental exercise of

[1] *The Art of Questioning*, New York, E. L. Kellogg & Co., 1888.

some value, and implies some knowledge of the subject in hand. You are conscious of this when you yourselves interrogate your class. Bear this in mind, therefore, in its application to the scholars. Let them occasionally change their attitude of mind from that of receivers and respondents to that of inquirers. Remember Bacon's aphorism, *Prudens quaestio, dimidium scientiae.* You are halfway to the knowledge of a thing, when you can put a sensible question upon it. So I have sometimes heard a teacher towards the end of a lesson appeal to his pupils, and say to them one by one, 'Put a question to the class on what we have learned!' To do this, a boy must turn the subject round in his mind a little and look at it in a new light. The knowledge that he is likely to be challenged to do it will make him listen to the lesson more carefully, and prepare himself with suitable questions; and whether he knows the answer or not, there is a clear gain in such an effort. The best teachers always encourage their scholars to ask questions. The old discipline in the Mediaeval Universities of posers and disputations, in which one student proposed a thesis or a question, and another had to answer it, was not a bad instrument for sharpening the wits. In a modified way, it may be well to keep this in view, and to set scholars occasionally to question one another."[1]

It may be added that Alcuin, the great teacher at the court of Charlemagne, required his scholars to ask the questions while he answered them.

Mr. Barnett on Questioning.

It is important to remember that questions may be in excess of the legitimate use of the school. They are almost purely analytical, and therefore leave knowledge in fragments. "The excessive use of questions," says Mr. Barnett, "is a worship of mere machinery." In particular, the habit that puts all or most of the questions in the mouth of the teacher is a part of that ill-adjustment of the teacher to the pupil which it is the purpose of this book to correct. In the words of the author just quoted:

[1] *Lectures on Teaching*, New York, E. L. Kellogg & Co., 1886, Chap. vi. p. 172.

"After all, it should be remembered that in the common order of nature it is the person needing instruction who usually asks questions, not the person giving it. Why should the nature of things be topsy-turvy in the schoolroom? It is not so at home. Why should the questioner in school be almost always the teacher instead of the learner? Our business is to make our scholars feel the lack of information, desire to ask questions; to encourage them to find out what they can for themselves, and to be keen to hear what we have to add to their stock. *They* must, in fact, question *us;* or, at all events, stand in the attitude of those who want to know."[1]

Language not Knowledge.

Nowhere is it more important than in the recitation to remember that language is not knowledge. Hobbes has said that words are the counters of wise men, the money of fools. To study is to get knowledge out of the printed page; to recite is to express knowledge in oral or written words; but experience shows that, comparatively speaking, knowledge may be omitted in both cases.[2] The pupil, especially if gifted with verbal memory, naturally falls into that mistake, since he must, at recitation time, have "something to say"; the regimen of the school often invites the mistake, and fond parents sometimes glory in its results. Hence the teacher must stand guard at this point, resorting freely to the two great correctives, — questioning and the study of concrete realities.[2]

[1] *Common Sense in Education and Teaching*, New York, Longmans, Green & Co., 1899.

[2] None but those who have looked curiously into the matter have much idea of the extent to which children, and even adults, are ignorant of the meaning of words that are perfectly familiar to them. Dr. Trumbull, the distinguished writer on Sunday-schools, tells some amusing anecdotes that illustrate the fact. First, he mentions the boy in Mrs. Horace Mann's school who didn't want to be good because he thought it meant "ter-be whipped." He tells of an old church member, commonly supposed to be intelligent in Scripture, who did not know what Christ's "passion" men-

At the same time, to say that a child should learn nothing by heart is to commit an error almost equal to saying he should never be told anything that he can find out for himself. Some things he should learn by heart, as many of the formulas in which knowledge is compactly expressed. Mention may be made of the multiplication table, mathematical definitions and axioms, the definitions and rules of grammar, some of the symbols of chemistry, the canons of formal logic — about these there can be no question, provided always the pupil's studies take so wide a range. Then the child should, first and last, memorize a certain amount of literature, especially poetry. Literature consists of two elements, the conceptions of the author and the words in which he expresses those conceptions — the substance and the form. The thought is in the words, just as the painter's thought is in the canvas, or the sculptor's in the marble, and the two cannot be separated without destroying the literature. The inference is not that the pupil should commit to memory all the literature that he studies, much less all that he reads, but that he should commit enough to furnish his mind with a fund of beautiful literary forms. To this end, what are technically

Learning by Heart.

tioned in the first chapter of Acts of the Apostles was. Another story is of a bright Sunday-school scholar, twenty-five years old, who asked who "the despised Galilean" was. The Doctor found also that one of his own daughters, who was familiar with trees and meadows, did not know what "the woods" was, and winds up with a farm boy who, as he left for church on Sunday morning, was directed by his mistress to remember *where* the minister's text was. He reported on his return, "I don't quite know, Ma'am, but I think it was somewhere down by the door!" The fact was, he had spent the morning, not in listening to the sermon, but in trying to discover the *place* of the text.—See *Teaching and Teachers*, H. Clay Trumbull, Philadelphia, John D. Wattles, 1884.

called "recitations," which are so prominent a feature on exhibition days, are to be encouraged within proper bounds. Still more, the admonition that children should understand what they learn, which is a plain intimation that, to the popular mind, learning does not always involve understanding, need not be too rigidly insisted upon. The child should not be allowed to fill his mind with words, but literary appreciation is a thing of degrees, and we grow up to great literary compositions.

Language to be Adapted to the Pupil.

The language of the lesson, like the matter itself, should be adapted to the pupil's capacity. The young pupil, for example, cannot take his mental food in abstract forms, or in large quantities. To present to him a large subject, especially in unfamiliar words, is like holding out to him a loaf of bread, expecting him to eat it at a single mouthful. As Dr. Harris has said: "The child's mind cannot seize great syntheses. He bites off, as it were, only small fragments of truth at best. He gets isolated data, and sees only feebly the vast network of interrelations in the world. This fragmentary, isolated character belongs especially to primary education."

Oral and Written Recitations.

A sentence or two will suffice respecting the relative value of oral and written recitations. Both should be used in proper proportions; oral recitations develop quickness of thought and expression, versatility, and fullness of ideas; written recitations develop definiteness and accuracy of knowledge and terseness and compactness of expression.

A few words will suffice also for what the pupil forgets. It is true enough that, in so far as he uses his knowledge as he goes along, it has present practical value, but in respect to his future lessons the knowledge that he

gains to-day is but a step to the knowledge that he is to gain to-morrow. Thus viewed, knowledge that is forgotten, it may be forever, has its lasting uses. The builder's scaffolding is temporary, but it is still necessary to the erection of the permanent structure.

Forgotten Knowledge.

In answering questions the time element is important. Some pupils are quick, others slow, and neither the quickness of the one nor the slowness of the other is a proper gauge of his ability or knowledge. Some teachers, again, require prompt answers, others are content with slow ones; the proper rule is the golden mean. If the teacher allows too little time to pupils they tend to become agile but superficial; if too much time, they tend to inattention and indolence. Radestock says: "The child must be accustomed to give one impression time to take root, and not follow it immediately by a corresponding action, that it may not pass away with that action into air." He also quotes Lazarus: "Deep thinking requires time; it is, therefore, a great pedagogical mistake if teachers—as is now generally done—urge their pupils to answer rapidly, and praise those who immediately have an answer ready. This causes everything to be lowered to a mere effort of mechanical memory. The pupils should be given time for individual contemplation, for deep and energetic thought-labor." [1] If a strong scholar, the teacher is apt to overestimate the ability of his class, especially in connection with the time that they require to see through things, or to think them out. This is one reason why strong scholars are not always strong teachers. This tendency is well

The time Element in Questioning.

[1] *Habit and its Importance in Education*, Boston, D. C. Heath & Co., 1887, pp. 36, 37.

illustrated by an interesting passage in the sketch of Professor Pierce, perhaps the greatest mathematical genius our country has produced, found in Dr. A. P. Peabody's pleasant volume entitled *Harvard Reminiscences.* The two men were at one time charged with teaching all the mathematics then taught in Harvard College, and alternated in some of the classes. Peabody says he was in one respect Pierce's superior because he was in other respects so much his inferior.

"No one was more cordially ready than he to give such help as he could; but his intuition of the whole ground was so keen and comprehensive, that he could not take cognizance of the slow and tentative processes of mind by which an ordinary learner was compelled to make his step-by-step progress. In his explanations he would take giant strides; and his frequent 'You see' indicated that he saw clearly that of which his pupil could get hardly a glimpse. I, on the other hand, though fond of mathematical study, was yet so far from being a proficient in the more advanced parts of the course, that I studied every lesson as patiently and thoroughly as any of my pupils could have done. I, therefore, knew every short step of the way that they would be obliged to take, and could lead them in the very footsteps which I had just trodden before them." [1]

PARALLEL READING.—*The Method of the Recitation*, C. A. McMurry and F. M. McMurry. Bloomington, Ill., Public School Publishing Co., 1898. *Herbart and the Herbartians*, Charles DeGarmo. New York, Charles Scribner's Sons, 1895. Chap. V. ("Method in Teaching"). *Common Sense in Education and Teaching*, P. A. Barnett. New York, Longmans, Green & Co., 1899. Chap. I. ("Instruction as Discipline"). *Practical Hints for the Teachers of Public Schools*, George Howland. New York, D. Appleton & Co., 1889. Chap. VIII. ("The Class Recitation"). *Lectures on Teaching*, Sir J. G. Fitch. New York, E. L. Kellogg & Co., 1886. Chap. VI. ("Examining").

[1] *Harvard Reminiscences.* New York, Houghton, Mifflin & Co., pp. 183, 184.

CHAPTER XII.

ATTENTION: ITS NATURE, KINDS, AND VALUE.

THERE have been writers who maintained that attention is a special faculty of the mind, like perception, memory, or imagination. None, that I am aware of, now hold that view, but all regard attention rather as a state or condition of mind in which any one of the intellectual faculties may manifest itself. It is a predominant intellectual state.

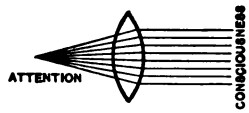
The General Sense of Attention.

In a broad sense every act of consciousness is an act of attention; you attend to the object that you know, although you may know it feebly, as compared with the object that you do not know and so do not attend to; but this is not the common acceptation of the word. Usage limits it rather to acts of knowing that have a certain character or possess a certain quality. Attention is a narrower term than knowledge or consciousness; we know things, or are conscious of things, to which we do not give attention in the accepted sense of the word.

Two Kinds of Consciousness.

The matter may be put in another way. Consciousness is a name that we give to all states of mind, or to all mental operations. It is seen in two forms — diffused consciousness and concentrated consciousness, the second being what we call attention. Messrs. Dexter and Garlick present the simple facts in this way:

"(a) Suppose I am looking at a small object by artificial light. I cannot see it distinctly. I interpose a lens between my eye and the object. The light is concentrated on the object and I see it distinctly. *Now consciousness, like light, seems to increase in vividness in proportion as it is concentrated on one spot.*



"(b) Two boys are talking in an undertone in the class. The teacher is dimly conscious of a 'noise' in the room; he thinks there is a noise, but is not certain. He begins to listen, to concentrate his mind, as it were, upon the supposed sound. He identifies it as a sound of conversation, and localizes the sound as coming from the two boys who are talking. The boys are talking no louder at the conclusion than at the beginning of the incident, but the teacher has by his act of attention given greater distinctness and vividness to his consciousness."[1]

Attention Illustrated.

Attention, then, involves energetic or intensive knowing, and it results from fixing some measure of mental power upon one object or a small group of objects, and withholding it from the other objects in the field of consciousness. Thus, as I ride along the road I notice a flock of sheep and a herd of horses in the field; my mental state is one of diffused consciousness. But I may attend to the horses alone, allowing the sheep to fall largely or wholly out of my mind, and *vice versa;* or I may attend to some one particular horse or sheep that captures my eye, to the partial or total exclusion of all the others, and of all competing objects of knowledge. Accordingly, attention is a selective act of the mind, one or more objects being chosen for intensive knowing to the exclusion of the others. It involves abstraction, that

[1] *Psychology in the Schoolroom.* New York, Longmans, Green & Co., 1898, page 28.

is, the withdrawing of mental power from certain objects to fix it upon one or a small number of others.

Etymology of "Attention."

The word "attention" is derived from the Latin *ad*, meaning "to," and *tendere*, meaning "to stretch," and so has the etymological meaning of *stretching* to something. Tension, which means primarily a strain upon some material thing, as a rope or a muscle, comes from the same Latin verb. Thus attention shows us, in a figure, the mind in a state of tension or strain, similar to that placed upon the rope or muscle. Moreover, the strain that comes upon the mind in attention is often, if not commonly, accompanied by a similar physical experience.

External Signs of Attention.

The external signs of attention are not to be mistaken. Thus, in certain forms of attention, the eyes, the ears, the arms sometimes, the whole body perhaps, "converge" towards their object, "all motions are arrested;" "our personality is captured," that is, all the tendencies of the individual, all his available energy, aims at the same point. Again, it has been remarked that in extreme cases the mouth opens wide, while in children and in many adults close attention produces protrusion of the lips, a kind of pouting. The word "tension" no doubt passed from the material into the mental sphere because of a supposed resemblance between the bodily and the mental states.

Attention the Lens of the Mind.

Still other similitudes are employed to explain the nature of attention. One of the most common, as well as one of the most effective, is that of the lens. "Attention is to consciousness what contraction of the pupil is to light," says Sir William Hamilton; "or to the eye of the mind what the microscope is to the bodily eye." Professor Dewey speaks to the

same effect. "In attention we focus the mind, as the lens takes all the light coming to it, and, instead of allowing it to diffuse itself evenly, concentrates it in a point of great light and heat."

Attention a Condensing Machine.

The action of the mind in attention may also be likened to the action of the machine used in the laboratory to condense air, or to produce high degrees of atmospheric pressure. A pressure of fifteen pounds on the square inch, which is normal, is called one atmosphere; multiples, as thirty pounds and forty-five pounds, are called two and three atmospheres, etc. So we might by analogy speak of one or more atmospheres of consciousness or of knowing power.

Beginning and End of Attention.

Attention presents to our view many interesting phases. For one thing, it is difficult to know when it begins and when it ends, so insensible is the transition from the ordinary state of consciousness to attention, and again from attention to the ordinary state of consciousness. "It embraces all degrees, from the transient instant accorded to the buzzing of a fly to the state of complete absorption."

Another interesting question is, To how many things can the mind attend at once? But this is of little interest for us here, because it is well known that effective study demands as close a limitation of the mind to the objects of study as possible.

Extends to Internal Facts.

Again, it is important to remark that attention is not limited to external or material objects, but relates to mental objects as well. It is just as easy, or even more so, to attend to a man's thoughts or feelings provided he gives expression to them, as it is to attend to his attire or bodily actions. Then, I can attend to my own unexpressed thoughts and feelings

in consciousness, and am often compelled to attend to them to the exclusion of external objects.

Furthermore, attention may take the direction of any cognitive faculty, as perception, memory, or thought. Attentive perception is energetic perception; attentive memory, energetic memory; attentive reflection, energetic reflection. The effects of attention are well known; they give a fuller and better knowledge of the object than the diffused consciousness. My ordinary observation of a horse, for example, gives me a general idea of the horse, my attentive observation gives me a minute and thorough knowledge; and so of the other kinds of attention.

May Take the Direction of any Cognitive Faculty.

We have seen that attention involves the fixing of the mind upon some object or objects, or that it is the concentration of the mind upon such object or objects. But this is not all; the element of time enters into the activity. Attention, as commonly understood, involves, not merely the fixing of the mind upon an object, but also the holding of it upon this object. The second element is as important as the first one. We may go back to the similitude of the lens: to be effective, the glass must be constructed so that it will focalize the rays of light and heat, and must then be held in one position long enough to make this focal point a burning point. The most powerful burning glass will not set gunpowder on fire if it is kept in active motion, while an instrument of much inferior power will ignite substances not accounted inflammable if it is held steadily in one place.

Continued Attention.

As there are two states or kinds of consciousness, so there are two kinds of attention. The distinction between them refers to the effort involved in the act.

Some acts of attention are not marked by conscious effort; other acts are so marked, and sometimes very strongly. Attention shown in the first class of cases is called passive; that shown in the second class, active. The first kind is also known as reflex, spontaneous, automatic, and involuntary attention; the second as voluntary or volitional attention. The central fact is this: in passive attention the will is not present, while in active attention it is always present, and often in a very energetic form. But we must take a closer view of the subject.

Passive and Active Attention.

In passive attention some object is present to the mind that draws to itself the mind's energy or power. Another way to state the same thing is to say that this object attracts the mind; and still another that it controls or commands the attention. The word "attract" used in this connection suggests a familiar fact which has perhaps prompted its use. If you bring a magnet within a certain distance of a bit of iron or steel that is free to move, it attracts the metal to itself and holds it in its own grasp. In passive attention the object may come into the mind's way incidentally, or it may be thrown into its way intentionally by some outside cause; it does not matter so long as the object chooses the mind or attracts it. Still further, the object may be an external or an internal one; it may be the discharge of a cannon or the mental image of some absent friend; but, whether the object be external or internal, it makes no difference so long as it holds the mind in its own firm embrace.

Passive Attention.

In active attention, on the other hand, the mind itself selects the object of knowledge and holds it captive. There is an act of choice or volition. In other words,

this act of selection proceeds from the will, and this fact gives to this species of attention its name, *voluntary*. As before, the object may be external or internal, but the act is voluntary if it proceeds directly from choice.

Active Attention.

A French writer has said that passive or reflex attention makes the child seem to belong less to himself than to every object which happens to catch his notice. But active or voluntary attention makes the object the mind's own possession. The impulse in the one case is from without inward, in the other case from within outward. The two kinds of movement may be likened to the impulses that move on the afferent and the efferent nerves, the first running from the surface of the body to the brain, the second from the brain to the surface of the body.

Two Kinds of Impulse.

It is apparent, therefore, that, while passive attention is spontaneous, active attention springs from cultivation. Dr. Preyer points out that, in the earliest period of its life, the child is capable of spontaneous attention only; it fixes its gaze upon shining objects and upon the faces of its mother or nurse; and it is only about the end of the third month that it explores its field of vision more fully and by degrees rests its eyes upon objects that are less interesting. Volitional attention comes much later. Ribot remarks that it "originates of necessity, under the pressure of need, and with the progress of intelligence. It is an instrument that has been perfected,—a product of civilization."

Active Attention Cultivated.

What Ribot says of attention as a whole, viz., that it "supposes the existence of a master idea drawing to itself all that relates to it and nothing else, allowing solicitations to produce themselves only within very narrow

limits, and on condition that they converge toward a common point," is more particularly true of passive attention.

The Value of Attention.

The high value of attention, its necessity to high attainments of any kind, above all, its relations to study and education, both as a cause of success in the student, and again as an object to be sought after in discipline—these things flow from the very nature of the act. Sir William Hamilton has discussed this branch of the subject with great ability, presenting many interesting historical examples of what attention may accomplish. It will be well worth our while to transcribe a portion of his discussion.

Sir William Hamilton on Attention.

"The difference between an ordinary mind and the mind of a Newton consists principally in this, that the one is capable of the application of a more continuous attention than the other,—that a Newton is able without fatigue to connect inference with inference in one long series towards a determinate end; while the man of inferior capacity is soon obliged to break or let fall the thread which he had begun to spin. This is, in fact, what Sir Isaac, with equal modesty and shrewdness, himself admitted. To one who complimented him on his genius he replied that, if he had made any discoveries, it was owing more to patient attention than to any other talent. There is but little analogy between mathematics and play-acting; but I heard the great Mrs. Siddons, in nearly the same language, attribute the whole superiority of her unrivaled talent to the more intense study which she bestowed upon her parts. If what Alcibiades, in the *Symposium* of Plato, narrates of Socrates were true, the father of Greek philosophy must have possessed this faculty of meditation or continuous attention in the highest degree. The story, indeed, has some appearance of exaggeration; but it shows what Alcibiades, or rather Plato through him, deemed the requisite of a great thinker. According to this report, in a military expedition which Socrates made along with Alcibiades, the philosopher was seen by the Athenian army to stand for a whole day and

a night, until the breaking of the second morning, motionless with a fixed gaze,—thus showing that he was uninterruptedly engrossed with the consideration of a single subject. 'And thus,' says Alcibiades, 'Socrates is ever wont to do when his mind is occupied with inquiries in which there are difficulties to be overcome. He then never interrupts his meditation, and forgets to eat, and drink, and sleep,—everything, in short, until his inquiry has reached its termination, or, at least, until he has seen some light in it.' In this history there may be, as I have said, exaggeration; but still the truth of the principle is undeniable. . . .

"These examples and authorities concur in establishing the important truth, that he who would, with success, attempt discovery, either by inquiry into the works of nature, or by meditation on the phænomena of mind, must acquire the faculty of abstracting himself, for a season, from the invasion of surrounding objects; must be able even, in a certain degree, to emancipate himself from the dominion of the body, and live, as it were, a pure intelligence, within the circle of his thoughts. This faculty has been manifested, more or less, by all whose names are associated with the progress of the intellectual sciences. In some, indeed, the power of abstraction almost degenerated into a habit akin to disease, and the examples which now occur to me would almost induce me to retract what I have said about the exaggeration of Plato's history of Socrates.

"Archimedes, it is well known, was so absorbed in a geometrical meditation that he was first aware of the storming of Syracuse by his own death-wound, and his exclamation on the entrance of Roman soldiers was — *Noli turbare circulos meos.* In like manner, Joseph Scaliger, the most learned of men, when a Protestant student in Paris, was so engrossed in the study of Homer, that he became aware of the massacre of St. Bartholomew, and of his own escape, only on the day subsequent to the catastrophe. The philosopher Carneades was habitually liable to fits of meditation, so profound, that, to prevent him from sinking from inanition, his maid found it necessary to feed him like a child. And it is reported of Newton that, while engaged in his mathematical researches, he sometimes forgot to dine. Cardan, one of the most illustrious of philosophers and mathematicians, was once, upon a journey, so lost in thought, that he forgot both his way and the object of his journey. To the questions of his driver whither he should proceed, he made no answer; and, when he came to himself at

nightfall, he was surprised to find the carriage at a standstill, and directly under a gallows. The mathematician Vieta was sometimes so buried in meditation that for hours he bore more resemblance to a dead person than to a living, and was then wholly unconscious of everything going on around him. On the day of his marriage the great Budæus forgot everything in philological speculations, and he was only awakened to the affairs of the external world by a tardy embassy from the marriage party, who found him absorbed in the composition of his *Commentarii*.

"It is beautifully observed by Malebranche, 'that the discovery of truth can only be made by the labor of attention; because it is only the labor of attention which has light for its reward'; and in another place: 'The attention of the intellect is a natural prayer by which we obtain the enlightenment of reason.'"[1]

John Stuart Mill.

Dr. W. B. Carpenter relates that John Stuart Mill thought out, or mentally composed, much of his great work on Logic while walking between his lodgings in London and the India House, picking his way through the crowded thoroughfares, so unmindful of what was going on about him that he even failed to notice his familiar acquaintances who chanced to meet him in the throng of passengers.

Absent-Mindedness and Distraction.

The terms "absent-minded" and "absent-mindedness," are often used in connection with such facts as are related in the stories told of Socrates and Mr. Mill. The implication is that the mind of the person thus employed has in some way escaped from him—is absent, in a word. This is just as you look at it; the fact is that his mind is absent from the things right about him because it is absorbed in things of another description. Ribot applies to this state of mind the word "distraction." "Thus there are people," he says, "who, wholly absorbed by some idea,

[1] *Lectures on Metaphysics and Logic.* New York, Butler, Sheldon & Co., 1868, Lecture XIV.

are also really distracted in regard to what takes place around them; they afford no hold to external events, and allow the latter to flit by them without penetrating their mind. Such people appear incapable of attention for the very reason that they are very attentive."[1]

Physical Effect of Attention.

The effects of attention and absorption of mind are by no means confined to the mental sphere; on the contrary some of the most striking of such effects relate to the body. For example, it is well known that mental preoccupation will deaden for the time physical pain. A public speaker, becoming interested in his theme, forgets the toothache or rheumatism that was torturing him when he began his discourse, and that is sure to return, perhaps with redoubled effect, when he has finished speaking. A boy who is eagerly pursuing a rabbit, or playing ball, does not notice at the time the severe cut or bruise that he has received on his bare foot from a pointed stick or a sharp-edged stone; while soldiers in the heat of battle do not always become immediately sensible of the wounds that they have received. It is well known, also, that bodily ailments, even severe ailments, may be brought on by thinking intently, long, and often, of some particular part of the body. "In this way it often happens," says Dr. Carpenter, "that a *real* malady supervenes upon the *fancied* ailments of those in whom the want of helpful occupation for the mind leaves it free to dwell upon its mere sensations; whilst, on the other hand, the strong *expectation* of benefit from a particular mode of treatment will often *cure* diseases that involve serious organic change."[2]

[1] *The Pyschology of Attention.* Chicago, Open Court Pub. Co., 1890, p. 78.

[2] *Principles of Mental Physiology.* New York, D. Appleton & Co., 1886, p. 145.

PARALLEL READING. — *Talks to Teachers on Psychology and to Students on Some of Life's Ideals*, William James. New York, Henry Holt & Co., 1899. Chap. XII. ("Attention"). *Lectures on Metaphysics and Logic*, Sir William Hamilton. New York, Butler, Sheldon & Co., 1868. Lecture XIV. ("Attention in General"). *Psychology in the Schoolroom*, T. F. G. Dexter and A. H. Garlick. New York, Longmans, Green & Co., 1898. Chap. III. ("Attention").

CHAPTER XIII.

PASSIVE ATTENTION: INTEREST.

THE last chapter was devoted to defining attention, discriminating its kinds, and marking out its scope and value. More definitely, we saw that attention is the act of the mind when concentrated or focused on some particular thing or subject; that there are two kinds of attention, passive and active, and that they sometimes assume forms of great energy. We also remarked the place that attention holds in the mental life.

Recapitulation.

We must not suppose, however, that the value of attention is limited to intellectual pursuits; it extends to the whole practical world as well. In fact, it is no exaggeration to say that a man's power of attention often determines his success or failure in life, involving his ability to use effectively his powers, both of mind and body. It is, therefore, obvious that the cultivation of the child's attention is a matter of prime importance in the conduct of his education, and that the subject needs careful study. We shall deal first, in two chapters, with passive attention, and afterwards, in two more, with active.

Value of Attention in Education.

There are some elementary facts relating to the subject that should be dealt with before we take up the practical

question of the development or cultivation of the passive attention.

1. The first of these facts is that the earliest acts of attention on the part of the child are reflex or passive acts.

Child's First Acts of Attention Passive.

As is well known, the human infant is born blind, but he gradually acquires sight and the world of vision is slowly opened to him. At first this world, or the very small portion of it that comes within his range, floats before him vague and indefinite; but ere long he begins to notice particular things, or they begin to arrest his mind. "At a very early age indeed," says M. Compayré, "there are moments of keen consciousness when all the intelligence the child possesses is concentrated on one point, when he is fascinated, for instance, by a light or bright color. The external signs of attention show themselves then: the eye is fixed; the child is motionless, plunged into a sort of stupor of ecstasy."[1] He may be fascinated also by sounds as well as sights. We have a report of a girl three months old who was attentive to all about her, even to the very noise of a step on the floor; and another of a boy who, when a month old, noticed the gestures of those that spoke to him and was perceptibly influenced by their words. These simple acts of attention are the beginnings of that power to focus the mind which reaches its fully developed form in such examples as those narrated in the last chapter. But they are distinctly reflex; at this stage of life the child has no will that can focus his mind or perform any similar act: his mind is focused from without and not from within; and this continues to be the case for a considerable period.

[1] *Intellectual and Moral Development of the Child.* New York, D. Appleton & Co., 1896. Part I., p. 272.

2. It is clear that in passive attention the object has some peculiar attraction for the mind or some peculiar influence over it. "Fascination" is M. Compayré's word. For example, as a pupil in school is toiling away at his arithmetic, a brass band that is passing on the street suddenly strikes up a tune, and his attention at once forsakes his lesson and follows the music. Under the circumstances the boy brings his mind back to the arithmetic only with great difficulty, if at all. Indeed, it may be with difficulty that he resists the impulse to leave his seat and rush to the window to see the band. It is evident, therefore, that there is something for the boy's mind in the music that is not in the arithmetic. Now what is this something? We have for this question no better answer than that the band is interesting, while the arithmetic is not, or that the band is more interesting than the arithmetic. The question why the one is more interesting than the other, we shall for the present postpone.

"Fascination." of the Object.

3. It is also well known that objects which attract the attention of some minds do not attract the attention of others, or do not attract them with equal strength. In other words, what is interesting to one person is not necessarily interesting, or equally interesting, to another person. Much depends upon age, association, individual pursuits, range of experience, individual temperament, and a variety of other circumstances. What takes the attention of a child may not take the attention of a man; what takes the attention of a boy may not take the attention of a girl, and so on. The teacher of the school referred to above will probably be less interested in the band than the school children, or his interest may be of a wholly different kind, relative

Personal Factors.

to keeping school in order. Again, what takes one child's attention may not take another's. One child in a clover field will run after the blossoms, another after the butterflies. A dozen persons, we will suppose, look out of the windows of the same railway car as it moves from station to station across the country; the same panorama passes before the eyes of all of them; they all form a general picture or idea of this panorama, perhaps, but even if so, they do not see—that is, give attention to—the same things. One attends to the forests and fields, a second to the growing crops, a third to the vehicles and people on the roads, a fourth to the animals in the fields, while a fifth observes two or more of these groups of objects. The explanation of such familiar facts as these is easy: these persons do not, generally speaking, consciously select the objects that they particularly observe, but follow their interests, which differ one from another; that is, their attention is reflex. Again, a dozen persons reading the same newspaper will be impressed, perhaps, by some of the same things, because they have some interests in common, but beyond this there is great diversity,—one attends to the fashion pictures, another to the reports of games, and still another to the market reports. Here, however, the will is likely to play a part, as indeed it may in the case of the railway passengers, different persons selecting different things.

4. Equally well known is the fact that an object which is attractive to a child or a man at one time is not attractive to him at another time. Here, too, much depends upon circumstances. There are, perhaps, no absolutely persistent interests. A child is not interested in his picture-book, or a man in his newspaper, if he is very sick. Ordinarily a man may not closely observe

Time and Place.

the carriages that roll along the street, but he will be likely to do so if he is about to purchase one himself. A band playing in the park of a great city may not even be heard by thousands of people, but it would be pretty sure to attract them if they were on a country road. Then, some objects are more attractive at one time than another. The boy in school forgets for a moment his arithmetic in the presence of the band, but if his mother, whom he has not seen for a year, were at the same moment to enter the schoolroom, he would probably not even notice the band in joy at seeing her. Still another important observation is that objects change in their attractiveness with the passage of time, some becoming more and some less interesting. The characteristic interests of childhood are very different from the characteristic interests of manhood, and *vice versa*. Tops, marbles, and hoops please us when we see them in the hands of children, but in the hands of men they are ridiculous.

Signif. cance of Language.

The interest that attaches to language is often altogether out of proportion to its intrinsic importance: who utters it, and when, and where? are decisive questions. A whole family will wait for the baby's first spoken word with almost bated breath. And yet that word is pure imitation and, to the child, means nothing. Again, a man's last words are listened to with a very different but perhaps an equal interest.

> "O, but they say, the tongues of dying men
> Enforce attention like deep harmony."

But it is well known that the tongues of dying men often move automatically and convey no real meaning. Interest is therefore no measure of value.

The question has been asked why certain objects attract the minds of children in greater or less degree, while others do not. The answer has been given that the attractive objects are interesting to children while the unattractive are not interesting. This brings the subject of interest fully before us. No better definition can be given than the one furnished by Dexter and Garlick. "Interest is the name given to the pleasurable or painful feelings which are evoked by an object or idea, and which give that object or idea the power of arousing and holding the attention." These authors quote another writer to this effect: "Whatever does not interest the mind, that the mind is indifferent to, and whatever it is indifferent to is to that mind as if it had no existence."[1]

Interest.

But why are some objects or ideas more interesting than others? This question cannot be answered in any final or conclusive sense. Sir William Hamilton calls wonder the mother of knowledge; other writers speak of novelty, curiosity, and astonishment, much in the same way; while M. Compayré, seeking the causes that turn the child's mind from one object to another, writes:

Source of Interest.

"The first is the novelty of impressions, for novelty renders impressions more intense. As a general rule, anything that is presented to the child for the first time will captivate him and occupy him for several moments at least. Astonishment, the surprise which every unexpected appearance causes, are attentive states."

Compayré on Novelty.

Still other stimuli, he says, are the different emotions that the child is capable of feeling. He mentions

[1] *Psychology in the Schoolroom.* New York, Longmans, Green & Co., 1898, p. 31.

"The agreeable emotions; above all, those that naturally captivate the senses, because the desire for pleasure is satisfied; for instance, all that tickles the appetite of hunger or of thirst; later, all that calls forth sympathy and affection. But the disagreeable emotions, too, are, to a certain extent, the starting point of the attentive emotions."[1]

Novelty a Source of Interest.

This is all very true; novelty, for example, is a source of interest. The family horse may not attract much attention in the pasture or stable, but he certainly will become interesting if he finds his way into the pantry. But this is only carrying the difficulty one step farther back. The question comes up at once, Why the novel or unexpected, why wonder or astonishment, is a source of interest? and we cannot give any final answer; we only know that it is so.

It is quite clear, then, that passive attention is a feature of great interest or value in human life. What are the things that interest us? What are the objects, external or internal, that steal away our minds and hold them captive? Upon this question, in no small degree, do individual usefulness and happiness depend. Let us follow the topic a little farther.

Attention Discontinuous.

1. Attention is not a continuous, but a discontinuous, state. No mind can be strained continuously without serious consequences. Every attentive state of mind, even if only reflex, is accompanied by a tax on the physical energies, the nerves and brain; and if such states were continuous, and especially if intense, the body would soon tire out. For a considerable part of our waking hours, to say nothing of

[1] *The Intellectual and Moral Development of the Child.* New York, D. Appleton & Co., 1896. Part I., pp. 276, 278.

our sleeping ones, we merely float upon the stream of consciousness. Objects external and internal pass before us without waking us up to real acts of attention; but we are liable at any moment to be thus waked up by some object that appeals to us, or the will may arouse us by an act of choice. Were it not for these periods of mental rest, or comparative mental rest, we should soon wear out: we could not bear the waste of nervous power that would result from continuous, severe mental application. It is true that minds differ greatly in their capacity for continuous activity, but no mind will long bear intense stimulation.

Every one knows by experience that, as Ribot says, attention is always accompanied by a feeling of effort, which bears a direct proportion to the duration of the state of mind, and the difficulty of maintaining it. Whatever the cause may be, the fact is unmistakable. In many instances the feeling of effort is for the time swallowed up in the very depths of attention; but when the end comes and the strain is over, weariness, or exhaustion, or collapse even, follows.

Accompanied by Feeling of Effort.

So those states in which the mind acts, but does not act with vigor, have an important function in the economy of life; in many conditions they furnish all the cognitive activity that, for the time, is needed. Indeed, the mind does most of its work without paying attention to such work; that is, it does it in a state of diffused consciousness. Thus, I do most of my walking without taking real heed to my steps. Hence, from this point of view, it is difficult to exaggerate the importance of the automatic mental machinery.

2. But these comparatively inactive states of mind do

not always answer the purpose. There are times and places where fleeting mental impressions will not suffice; our well-being, our very safety or life, depends upon the mental powers being thoroughly aroused; and in such cases we must give heed, or pay attention, to what concerns us. Many of the most serious interests of life fall into this class of objects. Mere drifting, mere living, never made a successful man in the proper sense of that term. Action—wise, well-directed action—is the key to success. Other things being equal, or greatly unequal, for that matter, men are successful in the work of their hands or minds in the ratio of the serious attention that they give to such work.

Attention Essential to Success.

But the attention that is so essential to success need not be, and cannot be, all voluntary attention. In the first place, if the will must exert itself every time an act of attention is called for, the mind will soon tire out, because the vigorous action of the will is an operation that involves much waste of nerve and brain force. The reflex, or automatic, acts of the mind are easier, and, so to speak, cheaper than the voluntary acts. Again, the reflex activities of the mind are always swifter and sometimes more vigorous than the voluntary activities. Accordingly, reflex attention appears in the common and necessary functions when ease and promptness of action are necessary. It appears also in emergencies. Thus a man attends to his toilet on arising in the morning without formally willing to do; or, as he walks along the street, he mechanically dodges a shower of bricks and mortar when a workman on a scaffold above him cries out, "Stand from under!" It is with the mind somewhat as it is with the body. The fly that lights upon your cheek is dislodged

All Attention Cannot be Voluntary.

by the involuntary twitching of the muscle that is disturbed, perhaps without your knowing that the fly is there, or a crumb of bread lodged in your windpipe is expelled automatically—the will rendering no service whatever in either case.

Office of Voluntary Attention.

The voluntary attention, as we shall see in a succeeding chapter, is especially reserved for those important matters that admit of more or less delay or hesitation. It marches side by side with deliberation. In comparison with this noble office, reflex attention may seem to play but a humble part in the economy of life. The fact is, however, that it plays a very important part. It is the very highest form of mental activity in the child, and it gives character to the life of the savage. In truth, as time goes on, the field of reflex attention widens, or the mental life becomes more automatic, as will be explained hereafter.

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CHAPTER XIV.

THE CULTIVATION OF PASSIVE ATTENTION.

WE meet at the threshold of our inquiry the law that runs through all mental cultivation and growth,—the law of activity. The mental faculties, in other words, increase through appropriate action. The activity of one faculty may strengthen a second and a third faculty, but the rule is that the faculties are most invigorated by their own specific exercise. While the mental faculties are in no sense separate and distinct, but are all the manifestations of the same mind, it is still true that perception grows mainly through perception, thought through thinking, memory through remembering, etc. At most, an inactive mind, in respect to volume and power, either remains stationary or loses power. Attention is not, indeed, a mental faculty in the sense that perception or memory is, but it is the energetic activity of any faculty, and so is subject to the general law of growth. Indeed, the growth of the faculties consists very largely in the increase of this very power of attention. Attention becomes strong through attending to things; a habit is formed and habit makes activity quick and easy. This is the case with passive and active attention alike.

Mental Activity the Law of Growth.

Coming to reflex attention, the first fact to be stated is that the mind responds to objects in the ratio of their interest or attractiveness; the more attractive or interesting the object, the quicker and fuller the response will be. From this very familiar fact are derived several important rules of teaching.

"Take the Child where he is."

One of these rules is that, at first, the objects or lessons to be taught to a child should be chosen with reference to his interests. Advantage should be taken of such preparation for instruction as he has already received. "Take the child where he is," must be the teacher's sole motto but only at first, for at a later stage this rule must, in some measure at least, be set aside.

Lessons to be Made Interesting.

A second rule is that, if the child does not respond, readily enough to the object or lesson, the teacher must contrive in some way to make it more attractive. Printed language, oral explanation, real objects, pictures or other graphic forms of illustration, offer him a large range in respect to modes of presentation. Moreover, there is an equal range in respect to the combination of facts and ideas; old ideas reënforce new ones, and new ideas give life and energy to old ones. One test, and a very high test, of the teacher's ability is his skill in making his instruction attractive.

Times and Places.

A third rule is that the teacher should take advantage of favoring times and circumstances in the selection and presentation of teaching material. It is well known that instruction which would be rejected at one time will be welcomed at another time. This is but another way of saying that the instruction that will make little or no impression under some cir-

cumstances will make a deep and lasting impression under other circumstances. The teacher, like other people, should strike while the iron is hot. This important rule has numerous applications.

A fourth rule springs from the fact that the interest of the pupil in a subject depends in some degree upon the hour of the day when it is presented. Freshness of mind, which is often only freshness of body, is to be considered. As a rule, the heavier school subjects should come in the earlier part of the day. Then, special instruction should be made to harmonize, to a great extent, with the passing occurrences of interest, either of the school or the larger world. A dispatch in the morning's newspaper will often make the pupils eager for a particular lesson in geography or history, civics or literature. When the body of the late President Faure lay in state at the Élysée in Paris, and the election of his successor was impending, the time was evidently opportune for teaching the proper pupils in the school the leading facts relative to the election of the president of the French Republic. A good time to give some special instruction in the geography of Cuba would have been when our army and fleet were carrying on war against the Spaniards in that island. Good teachers are always on the outlook for these opportune times and seasons. The value of moral instruction, in particular, depends almost wholly on its opportuneness, or on the immediate preparation of the pupils to receive it.

Hours of the Day.

A fifth rule is that if the teacher cannot after a sufficient trial make a subject interesting to a child, he should drop it, at least for the time. This assumes, of course, that the teacher is a competent one and that the pupil will continue in his care.

Dropping Subjects.

No doubt this rule is a difficult one to apply judiciously, and we shall soon have occasion to refer to it again.

The School Programme.

It will be said no doubt that school instruction, to be valuable, must be systematic, that there must be a programme, and that the number, kind, and order of the exercises cannot be determined by the mental states or affections of the children. This is perfectly true and should never be lost sight of. Haphazard, go-as-you-please teaching is necessarily poor teaching; instruction must conform to a general order. But this is a very different thing from denying the teacher the right to study the moods and tenses of his pupils, and to adapt the work of the school to them, within reasonable limits. The programme should never be allowed to become tyrannous, which it does when it is followed without variableness or shadow of turning. The teacher is, in general, the leader of the school, and not the school of the teacher. He is not passively to follow the whims and caprices of the pupils, or even their more lasting and secondary interests. He is rather to create interests, to control states of mind, to lead his flock; but this by no means implies that his regimen shall be fixed or arbitrary; it rather implies close observation of the minds of pupils and the adjustment of the instruction and discipline to them. There is a sense in which every one who leads must follow. Moreover, these remarks are particularly important in primary schools, where pupils have little power of self-regulation.

The Course of Study.

The course of study, if a good one, conforms in a general way to the rule that advantage shall be taken of favoring times and tides in arranging instruction. The old doctrine that specific lessons should be used for specific purposes, as memory lessons

for the memory, observation lessons for the perceptive faculties, and so on, has been greatly overdone, since any good lesson reaches more than one faculty of mind; at the same time certain subjects are adapted to certain kinds and stages of mental development. Nature lessons and historical tales are presented to the child when his faculties of observation and imagination are quick and active, and his curiosity is alert; while lessons of a more abstract character, as grammar and theoretical arithmetic, are held in reserve until his powers of reflection are more fully developed.

There are still other important facts relating to our subject that we must not fail to consider. In itself, interest is a very changeful thing, as all practical psychologists know; nor is it possible to understand it even measurably without indulging in some analysis—going behind the abstraction called "interest" to consider concrete interests.

Two Ways of Dividing Interests.

There are two ways in which interests may be divided—with reference to the extent of their prevalence, and with respect to the time of their continuance. Divided in the first way, interests are general and individual; divided in the second way, they are permanent and temporary.

General Interests.

General interests are those that belong to all normal minds at some stage of their development. Desire for knowledge, love of old things, interest in new things, and particularly interest in the junction of the new and the old—these are universal facts. These general interests vary greatly in strength and in the particular direction which they take, but they belong, nevertheless, to the human mind. Unless the desire for knowledge is universal, universal education is a vain hope.

Again, there are certain kinds of knowledge that are of general interest; no normal mind, for example, is indifferent to what immediately concerns itself.

Individual Interests.

Individual interests are those that belong to particular persons. All minds are not interested in knowing the same things, nor are all minds responsive to the same kinds of novelty. Every schoolmaster has his repertoire of illustrative examples. Sir Walter Scott took little interest in the regulation studies of the high school at Edinburgh, but was absorbed in the history, antiquities, and legends of Scotland. Sir Humphry Davy cared little for the studies of the school, and was accounted dull, but he became a great chemist. Charles Darwin was not interested in the work of the school that he attended, and got little out of it, as he said, except the knowledge of chemistry that he taught himself by private experiments. "St. Bernard," says Dean Farrar, "is so dead to outer impressions that he travels all day along Lake Geneva, and then asks where the lake is; while Linnæus is so sensitive to the beauties of Nature that, when he beholds a promontory standing boldly forth and teeming with beauty, he can not help falling upon his knees and thanking God for such a world."

Permanent Interests.

Permanent interests are either inherited, and so belong to the original character, or they originate in early habit, and so constitute a part of second nature. Desire for knowledge in some form, love of novelty of some kind, are permanent interests. So, desire for particular kinds of knowledge, as of animals or plants, or particular species of animals or plants, may be permanent.

Temporary interests arise from a variety of causes. Some of them continue for a considerable time, while others are wholly fleeting and transient. They do not,

therefore, reflect, as permanent interests do, the real char-
Temporary Interests. acter of the person, either native or acquired, but indicate only the stage of growth, or mental moods dependent upon bodily conditions or upon environment. Relatively, the interests of adults, as a whole, are far more permanent than the interests of children and youth. This is owing to the solidifying of the character, the development of the power of internal control, and the elimination of miscellaneous activities from the mental life.

The distinctions that have now been made, while often overlooked or undervalued, are of the utmost consequence in education; since to treat individual interests as though they were universal, and temporary ones as though they were permanent, or *vice versa*, must lead to serious evils if persisted in.

Environment is of two kinds, natural and moral, and both affect most profoundly our interests, and through
Influence of Nature. our interests our character. The immeasurable effect of these environments is largely summed up in the word "imitation," which is partly unconscious and partly conscious; the first being a kind of silent absorption or assimilation, the second a process of purposeful copying. As is well known, a child's two environments have very much to do, but not everything, with determining his interests in studies. Nature has inspired the great students of Nature. This is well expressed in Longfellow's poem, *The Fiftieth Birthday of Agassiz.*

But it is with the moral environment that we are more especially interested, meaning by "moral" whatever per-
Moral Environment. tains to man as a spiritual being. As a rule, children adapt themselves readily to the ideas, feelings, and practices of the home and the school. Such adaptation comes from imitation, which lies so near the

root of civilization itself. For instance, children brought up in families where, on Sunday morning, it is never asked whether the members of the family who are old enough will go to church, but it is silently assumed that they will go and the assumption acted upon, naturally fall into the habit of church going themselves, commonly with interest, or at least without resistance. It is the same way with attendance upon the school. Under favorable conditions children show little of that distaste for school of which so much is sometimes heard. With respect to both church going and school attendance, different parents give very different accounts. Nor is the fact accidental or wholly due to the inherited interests of children; it is largely due rather to the regimen and atmosphere of the home. In other words, much of the current disinclination for church and school is purely artificial, and in no sense a permanent interest, unless it is made permanent by habit.

Home and School.

We may go much further. Children who grow up expecting to find interest in their books and studies commonly find it, while children who fail to find interest are often prepared for the failure by the habitual tone of the home or the school, or both. So-called interests are marked by the artificiality mentioned in the last paragraph. It is significant how much more trouble some parents and teachers have with the studies of their children or pupils than others. Sometimes the familiar tone of the home, or it may be of the school itself, tends to engender whims and notions in the heads of pupils. Sometimes the direct suggestion comes from parent or teacher that the child will not find such or such a study interesting, or that he cannot master it, when in fact he has made no real effort to find it interest-

ing or to master it. In strong confirmation of this view is the fact that the studies in which pupils take little interest are likely to be those in which their teachers take little interest, while their favorite studies are also likely to be the favorite studies of their teachers. These facts are no doubt due in part to the quality of the teaching, but by no means wholly so. Broadly speaking, the question how far the school is itself the parent of its own difficulties, is a curious one.

Imitation and Studies.

Again, the likes and dislikes of pupils for certain studies are due even more to the influence of their fellow-pupils than to the influence of their parents and teachers. A boy of my acquaintance, living in one town, could not be persuaded to study Latin, but on removal to another town he entered upon the study and pursued it with pleasure. The study, certainly, was the same nor had his mind changed, except in a superficial sense. The explanation of the change of mind was simply that his companions in the one town did not study Latin, while those in the other town did. This fact is but one of many showing that interest is often immediately dependent upon sympathy and imitation. These two factors are just as potent in the sphere of studies as they are in the sphere of behavior or conduct. Boys go away from home to school, resolutely determined that they are not interested in certain subjects, and will not study them, who, within a year or two, find great pleasure in prosecuting these very studies, while neglecting others that they had intended to pursue. Some interests die out, while others spring up and take their places. Still it must be said that the change is not always due to change of fashion, that is, to imitation, but is often the result of mental growth.

It is the same way with vocations; in America there could hardly be a more fallible guide to the callings that young boys will pursue when they become men than their present ideas and protestations. Even when the man follows the vocation that the boy had chosen, the fact is due oftener to the pressure of necessity or to imitation than it is to the working of permanent interests.

Vocations.

In respect to school studies, a personal element of importance is involved. A subject is attractive to a pupil when taught by one teacher, but is unattractive when taught by another. In many cases this is due to the different ways in which the subject is presented, but not unfrequently it is due to the personality of the teacher. In truth, an unattractive subject is frequently only an unattractive teacher. This is an important topic, which will come before us again.

Personal Element in Interest.

It is perfectly true that interests often root far deeper down in the mind than these superficial facts would suggest. Aptitudes and inaptitudes for studies and vocations are sometimes inborn, and not unfrequently declare themselves at an early age. Here are found the geniuses and semi-geniuses that Nature gives to the world. But this description does not apply to the large majority of children and youth in either particular. The average boy is not singled out by Nature as especially fitted for this study or for that pursuit; if he were so singled out, he would not be the average boy. He is cut off by Nature from the successful prosecution of many studies and vocations, but, within wide limits, he can become interested in and can succeed in a large variety of things. In respect to vocations, the boy who becomes a miner in Wales or a fisherman in

The Deeper Interests.

Holland, becomes a dairyman in Wisconsin or a wheat-grower in Dakota, succeeding equally well, so far as we can discover, in all these vocations. It is not the intention to minimize the variation that comes from Nature, but only to keep it within its proper limits. It is one of the topics of educational interest that are treated with much exaggeration. Deep-sea currents carry vast icebergs against both wind and tide, while surface currents are themselves the creations of wind and tide.

Importance of Discrimination.

To discriminate between the permanent and the temporary interests of school children is an important matter. The teacher will produce small results working against strong permanent interests, while temporary interests are to a great extent placed in his own hands. Often, too, it is a difficult and sometimes an impossible matter to make this discrimination. Externally the two classes of interest are very much alike, although so different in essential character. Accordingly, the various signs of interest in pupils is a subject that the teacher should constantly study. One very practical question is, What shall the teacher do when he cannot decide whether a pupil's present dislike for a study is permanent or transient? Obviously, if the study is an important one, he should make all reasonable efforts to arouse interest and overcome the dislike. If he fails the subject may be dropped for a time, and then the effort to awaken interest be renewed. If reasonable effort thus renewed fails to accomplish the end, it is safe to infer that the dislike is not a superficial one. But it is fortunate that the normal pupil, with infrequent exceptions, can be interested in the essential studies of the elementary school. In fact, as we have already seen, looking at the subject from another

point of view, the interests of the normal child are the great criterion in selecting the studies of the school.

The Child's Interests in the Hands of the Teacher.

In the course of the preceding remarks it has become perfectly clear, if it was not clear before, that the interests of the child are to a great degree in the hands of the teacher. Within limits, and these by no means narrow ones, he can augment, diminish, or destroy old interests, or create new ones. The fact is that the skillful teacher, so far from being bound by predetermined facts of child-nature, can exercise over young children an influence that is almost magical. Fénélon, for example, waved his wand over the young Duke of Burgundy until he completely changed his character. The teacher's influence may even be too great, destroying all strength and individuality of character, as in the case just referred to. Fénélon's method, as a royal tutor, was indirect instruction, which works wholly through the reflex attention, and it was successful to a fault. Attention that works solely through the automatic nature naturally leads to this very result.

Evils flowing from Interest.

The last sentences suggest certain dangers that lie at one end of the doctrine of interest. Many more dangers no doubt lie at the other end. Practically the fleeting impressions, the mere notions, whims, or caprices of children are not unfrequently mistaken for permanent attractions or repulsions, and are made criteria for conducting their education. There could be no greater mistake. Temporary interests are by no means to be disregarded; even the most fleeting impressions of the child have some significance; but often the teacher's first duty is to see how soon and how far he can turn the tide of interest into a new channel. The teacher's duty is negative as well as positive. While he

develops some interests he weakens, or, it may be, even destroys others. He works through stimulus which he must in some cases supply, and in others withhold.

The subject may be viewed from another quarter. It is now common to denounce the old regimen for children, that of the Puritans, for instance, as repressive, or even oppressive. We are told that children did not enjoy the liberty to which they were properly entitled, and were dwarfed or made lopsided in their development. No doubt there is much truth in this view of the matter. At the same time, it is possible to go too far in the opposite direction, with the result that children, with all their liberty or freedom, will suffer from weakness and enfeebled character.

The Puritan Regimen.

It is not meant to deny either that children do differ in their capacities and interests, or that the fact should be recognized both in the home and in the school. The sole purpose of what has been said is, rather, to call a halt long enough to inquire seriously how much room shall be made in elementary education for what is called *interest*.

The tendency that is seen in some quarters to look upon what are deemed "interests" with something of fatalistic awe is to be deplored. Hard work, and plenty of it, and not the passive resignation of the mind to the stream of interest, is the condition of thorough scholarship. A gelatinous regimen will not suffice. The lesson of strenuous endeavor will receive due emphasis in due time; but now, to keep the strenuous teacher in heart, I will say that I endorse every word of the following passage quoted from a recent book, only the doctrine of the passage must not be reduced to practice too soon:

"Pride and pugnacity have often been considered unworthy passions to appeal to in the young. But in their more refined and noble forms

they play a great part in the schoolroom and in education generally, being in some characters most potent spurs to effort. Pugnacity need not be thought of merely in the form of physical combativeness. It can be taken in the sense of a general unwillingness to be beaten by any kind of difficulty. It is what makes us feel 'stumped' and challenged by arduous achievements, and is essential to a spirited and enterprising character. We have of late been hearing much of the philosophy of tenderness in education; 'interest' must be assiduously awakened in everything, difficulties must be smoothed away. *Soft* pedagogics have taken the place of the old steep and rocky path to learning. But from this lukewarm air the bracing oxygen of effort is left out. It is nonsense to suppose that every step in education *can* be interesting. The fighting impulses must often be appealed to. Make the pupil feel ashamed of being scared at fractions, of being 'downed' by the law of falling bodies; rouse his pugnacity and pride, and he will rush at the difficult places with a sort of inner wrath at himself that is one of his best moral faculties. A victory scored under such conditions becomes a turning point and crisis of his character. It represents the high-water mark of his powers, and serves thereafter as an ideal pattern for his self-imitation. The teacher who never rouses this sort of pugnacious excitement in his pupils falls short of one of his best forms of usefulness."[1]

Professor James on Pride and Pugnacity

PARALLEL READING.—*The Principles of Psychology*, William James. New York, Henry Holt & Co. Chap. XI. ("Attention"). *Habit and its Importance in Education*, Dr. Paul Radestock. Translated by F. A. Caspari. Boston, D. C. Heath & Co., 1886. *Principles of Mental Physiology*, William B. Carpenter. New York, D. Appleton & Co., 1886. Chap. VIII. ("Of Habit"). *Talks to Teachers on Psychology and to Students on Some of Life's Ideals*, William James. New York, Henry Holt & Co., 1899. Chap. VIII. ("The Laws of Habit").

[1] *Talks to Teachers on Psychology and to Students on Some of Life's Ideals*, William James. New York, Henry Holt & Co., 1899, pp. 54–55.

CHAPTER XV.

ACTIVE ATTENTION: THE WILL.

BEFORE we take up the cultivation of the active attention as a practical problem, we must consider yet further its value or its place both in educational theory and practice. Our thesis is that its proper cultivation is *the educational problem.* We must, however, first take a single look backward.

The reflex mental life is the mental life characteristic of childhood and immaturity. Contrary to the common opinion, perhaps, the child has little will power or power of self-direction; at first he has absolutely none, but is the sport of the world about him, the creature of circumstances. To a degree his environment may be shaped by his seniors, as his parents, for an educational purpose, but the principle is the same. He knows and pursues the things that fascinate him, and his education is wholly negative. Now he is absorbed in one thing, and now in another. He flits from object to object as the bee or the butterfly flits from flower to flower. Only two things can be said of him with certainty—he is sure to have many interests in the course of a day, and none of them will continue long. This reflex life is also characteristic of the undeveloped man and the savage,

The Child's Life Reflex.

both of whom live in their senses, or in the external world, to such an extent that they belong to Nature rather than to themselves. Furthermore, this spontaneous, passive life of the mind is the only mental life that the child or the undeveloped man is, for the time, capable of living. Still more, it contains the germs out of which the regulated life of the judgment and the will is developed. Neither will it ever come to an end while life itself lasts. In a sense, it will in time even encroach upon the later conscious and voluntary activities that are characteristic of the higher life of the soul, and that are built up at the expense of the lower life.

Reflex Life Inferior to Active Life.

But, interesting and important as it is, this reflex life is still distinctly inferior to the active or voluntary life of the mind. The child or man who leads it is in no sense a law unto himself. The higher mental life proceeds from within outward, not from without inward, and it never dawns until self-direction, that is, the will, begins to assert itself. Such assertion is the beginning of self-discipline. Voluntary directive power over the current of thought and feeling, as Dr. W. B. Carpenter says, is the characteristic of the fully developed man, and "the acquirement of this power, which is within the easy reach of every one, should be the primary object of all mental discipline." "It is thus," he says, "that each individual can perfect and utilize his natural gifts; by rigorously training them in the first instance, and then by exercising them only in the manner most fitting to expand and elevate, while restraining them from all that would limit or debase." This is the center of character. "It is, in fact," he continues, "in virtue of the will that we are *not* mere thinking automata, mere puppets

Dr. Carpenter on Attention.

to be pulled by suggesting strings, capable of being played upon by every one who shall have made himself master of our springs of action."[1]

Dr. Harris writes to the same effect. To grasp his meaning fully, however, we must remember that he does not recognize passive attention as attention at all, but bounds the activity by the exercise of the will.

Dr. Harris on Attention.

"The person without a well-developed power of attention is in a state of passivity toward invading external influences. He is a prey to impressions that come from his environment. Most of these 'early impressions' of which we hear so much were received at a time when trivial things could seize upon us and absorb our powers of observation to the neglect of more essential things. Such passive impressibility, the condition of the childish memory, it is the object of education to eradicate. The pupil must learn to exclude and ignore the many things before him, and to concentrate all his powers of mind on the one chosen subject. . . . Intellectual culture begins when the will first commences to act on the senses. Its first action produces what is called attention. Attention selects one object out of the manifold and collects the various impressions made upon its senses, while it wilfully neglects the multitude of other objects that are in its presence—it inhibits the consideration of these others. Attention, then, may be regarded as the name of the first union of the will with the intellect. It turns the chaos of sense-impressions into a system by connecting them with a focus arbitrarily chosen.

"Intellectual training begins with the habit of attention. In this activity will and intellect are conjoined. The mind in this exercises its first self-determination. It says to the play of sense and idle fancy: Stop and obey me; neglect that, and notice this. The indefinitely manifold objects always present before the senses vanish, and one object engrosses the mind. This is the *sine qua non* of intellectual culture."[2]

[1] *Principles of Mental Physiology.* New York, D. Appleton & Co., 1877, pp. 25–27, 147.

[2] *Psychologic Foundations of Education.* New York, D. Appleton & Co., 1898, pp. 187, 237, 238.

To quote Ribot also:

Ribot on Attention.

"Voluntary or artificial attention is a product of art, of education, of direction, and of training. It is grafted, as it were, upon spontaneous or natural attention, and finds, in the latter, its condition of existence, as the graft does in the stalk into which it has been inserted. In spontaneous attention the object acts by its intrinsic power; in voluntary attention the subject acts through extrinsic, that is, through superadded powers. In voluntary attention the aim is no longer set by hazard or circumstances; it is willed, chosen, accepted or, at least, submitted to; it is mainly a question of adapting ourselves to it, and of finding the proper means for maintaining the State; and hence, voluntary attention is always accompanied by a certain feeling of effort. The maximum of spontaneous attention and the maximum of voluntary attention are totally antithetic; the one running in the direction of the strongest attraction, the other in the direction of the greatest resistance. They constitute the two polar limits between which all possible degrees are found, with a definite point at which, in theory at least, the two forms meet." [1]

These quotations show the estimation in which these distinguished thinkers hold the active attention, and its proper education. They suggest, also, the reason why the cultivation of the active attention is emphatically *the* educational problem. We must, however, look more intently into the matter.

The Will Chooses.

The will is the mental faculty or power that makes and executes choices. The will is the mind choosing. It is the will, therefore, that selects the object in active attention, holds it in the focus of the mind, and so determines the point from which the whole intellectual movement proceeds. The intellect does not attend to the object primarily because the object is interesting, but because the will issues a mandate that

[1] *The Psychology of Attention.* Chicago, Open Court Pub. Co., 1890, p. 35.

it shall do so. A score of objects more interesting than the one selected may clamor for recognition, but the will excludes them all, more or less effectually, and holds the chosen object in the focus of consciousness. In the early stage of culture, as we have seen, the child's will is weak, and the competition for his attention strong; but as the will strengthens, or voluntary attention grows, the mind centers itself upon objects of its own choice, and thus proves its superiority to environment. This stage of keen competition for the child's attention should be closely watched by the teacher. It is the most critical period in his education, both mental and moral. Professor James is on firm ground when he tells teachers that the reflex, passive attention, which seems to make the child belong less to himself than to every object which happens to catch his notice, is the first thing which they have to overcome. Such is the first fact to be firmly grasped.

Passive Attention not Sufficient.

But the will alone cannot long hold the mind to any object that it may have chosen; the effort is too great, the waste of brain and nerve substance too rapid. Or, to change the expression, the mind cannot, by sheer force of will, or "bearing on" as it is sometimes called, cling to any matter hour after hour, or even minute after minute. The choice or act of selection must be constantly renewed. In fact, what is called sustained attention is nothing but a series of choices or elections of the object chosen. Still more, this series is of necessity short, particularly in the cases of school children, for the same reason that the single act of choice is short—it is an exhaustive mental operation. This is the second fact to be grasped.

Active Attention not Continuous.

That fixed volitional attention is difficult is perfectly

well understood by all persons who have ever given such attention to serious matters. It is particularly so in the cases of children, for reasons that have already been stated. But, no matter how hard it is for the child in school to give attention, his attention we must have, and his active attention at that. The concentration of power that comes directly from interest will not suffice, for that finally leaves the mind unregulated and roaming at large; the will must focus the mind if there is to be any real education or discipline. There is no getting on without attention if the school is to accomplish its purpose. Unless, therefore, the teacher can get and can hold the child's attention he may dismiss immediately the idea of doing him anything more than temporary, fleeting good. What then shall be done? Fortunately, the answer to this question is as decisive as it is important.

Active Attention Hard to Obtain.

1. It is plainly necessary to reënforce the active attention from some source outside of itself, or, at least, outside of the will. Nor is there any room for doubt as to the quarter where we are to seek and find such reënforcement. We are to seek and to find it in interest. Unless some element of interest can be found in the object of attention that the will has chosen, or can speedily be brought into it, attention will flag and will soon defy all the teacher's efforts to renew it. The school child cannot hold on to some chosen object of attention as a monkey can cling with its tail to the branch of a tree. This element of interest that is so indispensable may be either old or new; if old, it will at first pass unnoticed; if new, it must still be something like an old interest.

It Needs Reënforcement.

2. It is, then, the appearance of some element of in-

terest, old or new as the case may be, that makes protracted voluntary attention possible. In other words, active attention must be buttressed at last upon passive attention. In fact, the difference between the active and the passive attention may, in one sense, be easily exaggerated. Interest is involved in both, sooner or later, if attention is protracted or sustained. The question will therefore occur to some readers, Why then make so much pother about the matter? In dealing with attention, why not drop all talk about passive and active, reflex and voluntary, and confine the discussion wholly to interest? The question is a fair one, and the answer important. Moreover, it is an answer that can be given in few and decisive words.

Passive Attention such Reënforcement.

3. In passive attention objects of interest, one after another, dominate the mind. It matters not what these objects are or why they are interesting; nor is there any necessary relation existing between their influence over the mind and their real value, especially in early life. The sway of interest is the abandonment of the life to environment. In active attention, on the other hand, the will first chooses some object that is deemed worthy to be chosen, and then, although it cannot by its unbroken authority hold this object in the focus of the mind without the help of interest, it can renew the choice once and again, and, what is more, summon interest to its assistance. In this case the will both chooses the path and checks attempts to abandon it; in the other, there is no choice or attempt at self-regulation. To some this difference may seem unimportant and trivial. Not so; on the other hand, this difference measures the whole interval

The Will Focuses the Intellect in Active Attention.

that separates, in effect, the untrained and the trained man. The common admonitions, "Try again," "Persevere," "Do not become discouraged," "Hold on," and the like, all of which are addressed to the will, show the estimation in which this voluntary element is held. Popular speech testifies to its efficacy and value. The same may be said, also, of the examples of courage, resolution, and fortitude that play so important a part in the development of the child-life: they energize the will as well as enkindle interest. Thus popular usage, as well as popular speech, bears its testimony to the importance of will-development as an element in education.

4. It may be said that the choice which the will makes in respect to attention is only a choice among interests. In the long run, there is some truth in this view of the subject, since voluntary attention, if continued, tends to pass into habit, and so to become reflex attention; but it is by no means wholly true. The well-disciplined man, no matter how thoroughly his mind becomes grooved, always has a considerable capacity for action wholly outside of his immediate interests. The man who can do nothing except what interests him, no matter what his interests are, is not even half a man.

Choice of Interests.

It has appeared very plainly in the course of our discussion that the cultivation of the pupil's attention is a difficult matter, involving much skill in the teacher. As Compayré says:

Compayré on the Education of Attention.

"Nothing is so delicate or so fragile as the attention in its first manifestations. If you employ unskillful methods; if, for example, you seek by force to hold the child's mind on books which do not interest him, or on abstractions which he hardly comprehends, you run the risk of rendering him inattentive for life; you provoke him to seek in distrac-

tion a refuge or defense against the *ennui* caused by studies illy adapted to his age." [1]

This is perfectly true. The springing plant must be cultivated with peculiar care, but if forcing the child to hold his mind on uninteresting things leads to permanent habits of inattention, the abandonment of the child to his fancies leaves his mind unsettled and fickle.

Attention an Exceptional State of Consciousness.

The truth is, as Ribot says, that spontaneous attention, and, above all, voluntary attention are exceptional states of mind. Eliminate from consciousness, as he does, "the general routine of life—that enormous mass of habits that move us like automatons, with vague and intermittent states of consciousness; . . . the periods of our mental life in which we are purely passive simply because the order and succession of our states of consciousness are given to us from without, and because their serial connection is imposed upon us; . . . that state of relative intellectual repose in which people 'think of nothing,'" or "when the states of consciousness have neither intensity nor clear determination," and finally, "all states of passion and violent agitation, with their disorderly flux and diffusion of movements,"—eliminate all these things, "with perhaps a few others," and "we may then credit to the general account of attention that which remains." "In this general account," he continues, "the cases of spontaneous attention make up by far the greater number; the clear and indisputable cases of voluntary attention constitute the minority; in many men and women they amount almost to nothing." Moreover, the cause of the difference he

[1] *Psychology Applied to Education.* Boston, D. C. Heath & Co., 1894, p. 58.

finds, in part, in "the fact of common experience that in the state of fatigue, the state of exhaustion, attention is very difficult, often impossible, and always without duration. And the reason is, that attention, by its very nature, more than any other intellectual state requires a great expenditure of physical force, which has to be produced under particular conditions."[1] While this account is true in the main, it in no way disproves, but rather confirms, the contention that the highest aim of education is to develop volitional control of the mind. Small as may be the portion of life that falls under the head of voluntary attention, it is still incalculably the most productive and valuable part of life.

Great indeed is the waste of time and energy caused by indecision and irresolution. I speak now not of practical matters, but of studies. Said Professor Moses Stuart: "While one man is deliberating whether he had better study a language, another man has obtained it." To the same effect are the well-known words of Dr. Johnson: "Whilst you stand deliberating which book your son shall read first, another boy has read both. Read anything five hours a day, and you will soon become learned."

Value of Vigorous Will.

The value of vigorous will is abundantly shown in history. It is the backbone of character—more than anything else it is character. Intellectual pursuits sometimes tend to break down the will. Mr. Lowell mentions an engineer who knew how to build a bridge so well that he could never build one. Hamlet could not screw his courage to the sticking point because he had so many ideas in his head.

[1] *The Psychology of Attention.* Chicago, the Open Court Publishing Co., 1890, pp. 118, 119.

"And thus the native hue of resolution
Is sicklied o'er with the pale cast of thought;
And enterprises of great pith and moment,
With this regard their currents turn awry,
And lose the name of action."

Coleridge is often given as a conspicuous example of a man of great gifts, who never accomplished what he should have accomplished because he was indolent and of feeble will. Mr. Lowell, in his address on Coleridge delivered in Westminster Abbey, expresses doubt whether he was a great poet and a great teacher, but says he had the almost overabundant materials of both. Lowell characterizes him happily in the sentence: "No doubt we have in Coleridge the most striking example in literature of a great genius given in trust to a nervous will and a fitful purpose."

PARALLEL READING. — *Talks to Teachers on Psychology and to Students on some of Life's Ideals*, William James. New York, Henry Holt & Co., 1899. Chap. XV. ("The Will"). *Principles of Mental Physiology*, William B. Carpenter. New York, D. Appleton & Co., 1886. Chap. IV. ("Of the Will"). *Psychology of the Schoolroom*, T. F. G. Dexter and A. H. Garlick. New York, Longmans, Green & Co., 1898. Chap. XXI. ("The Will"). *Psychology Applied to Education*, Gabriel Compayré, translated by W. H. Payne. Boston, D. C. Heath & Co., 1894.

CHAPTER XVI.

THE CULTIVATION OF ACTIVE ATTENTION.

STATED from the pupil's point of view, the problem of cultivating the active attention is this: to develop, through repeated acts of choice and persistent application, the power to apply the mind vigorously to the appointed work of the school. Success in the attempt leads to mastery of this work, as well as to the formation of the habit or the development of the power of attention. Stated from the teacher's point of view, the problem is this: to establish and maintain in the school a regimen that shall help the pupil to gain the foregoing end. We shall now consider the problem as it shapes itself to the teacher's mind. This we do because growth or development on the pupil's part is unconscious, being acquired while he is engaged in the pursuit of his ordinary school work.

The Problem Stated.

The first fact to be stated is that talk about cultivating attention is not at all the same thing as cultivating it. The two things are different, and there is no necessary connection between them. There may be much talk about attention in the school and little attention, or there may be much attention and no talk about it whatever. Cries of "Atten-

Talk About Attention Is Not Attention.

tion!" and lectures by the teacher addressed to the pupils about attention, defining and extolling it, do not avail. Pupils are not influenced for good by such exclamations or such homilies. The teacher will not get attention by demanding it as his right, or begging for it as a favor; by urging upon pupils the importance of the thing, or the value of the lessons that he has to teach. When the moment arrives for the session of the school to open, morning or afternoon, the call "Attention!" like the stroke of the bell or other signal, may bring the school to order and settle the scholars down to their work. The same may be said of other similar occasions during the day, as when there is a change of classes, or some unusual cause has thrown the school into temporary confusion. But beyond this, such calls as "Order!" "Attention!" and the like, do harm rather than good. As a rule, the noisiest and least attentive schools are those in which such cries are most frequently heard. The psychology of the matter is briefly presented by Professor J. M. Baldwin in these sentences:

Professor Baldwin Quoted.

"It is a familiar principle that attention to the thought of a movement tends to start that very movement. I defy any of my readers to think hard and long of winking the left eye, and not have an almost irresistible impulse to wink that eye. There is no better way to make it difficult for a child to sit still than to tell him to sit still; for your words fill up his attention, as I have occasion to say above, with the thought of movements, and these thoughts bring on the movements, despite the best intentions of the child in the way of obedience."[1]

To adapt Professor Baldwin's language to the present case, there is no more effective way to make it hard or

[1] *The Story of the Mind.* New York, D. Appleton & Co., 1898, p. 180.

impossible for a pupil in school to give attention to a subject than continually to exhort him to do so.

The next thing to be stated is that the teacher should appreciate the difficulty as well as the importance of the practical problem. After remarking that attention is fixity of thought, and that it is hard for adults to give it, Sir J. G. Fitch observes:

Sir J. G. Fitch Quoted.

"We are accustomed to make very heavy demands upon the child's faculty of attention. We expect him to listen to teaching from nine o'clock until twelve; then, after a brief interval, to compose himself into stillness and attention again, often giving him instruction, the greater part of which is above his comprehension, and adapted to cases and experiences very different from his own. He is naturally very impulsive about things that immediately surround him; he is curious to learn about the sun, and the moon and the stars; about distant countries; about the manners of foreigners; about birds, and beasts, and fishes; nay, about machines and many other human inventions; but he is not prepared at first to perceive that the knowledge which you impart is related to his daily life. You do not find the appetite for such knowledge already existing. You have to create it, and, until you have created it, he cannot give you the fixed and earnest attention you want without an effort which is positively painful to him."[1]

In his picturesque way, Professor James characterizes the objects that attract the mind of the normal child as "strange things, moving things, wild animals, bright things, pretty things, metallic things, words, blows, blood, etc., etc.," most of which, it is almost needless to say, are widely separated from the ordinary work of the schoolroom, at least as schools are commonly carried on.

Considering the urgency of the problem of interest, it is fortunate that we become interested, or at least *tend* to

[1] *The Art of Securing Attention.* Syracuse, C. W. Barden, 1885.

become interested, in our choices because we have made them. In reality they are a part of ourselves. The mental law that whatever costs us effort almost necessarily becomes valuable to us, causes the succulent plant of interest to grow up out of the dry ground of irksome employments. Not only does activity spring from interest, but interest springs from activity. Nor does the series necessarily begin with interest; it may begin with choice. The mother loves best the child that has cost her most care; the minister or the Sunday-school teacher cannot be indifferent to the church or the school that has been an object of thought and sacrifice; while the veteran scholar becomes so much interested in his favorite study that he tends to exaggerate its relative importance. We read that Jacob served seven years for Rachel, and they seemed unto him but a few days for the love he had for her. Yes, but his love grew the more by reason of his long, hard service. The interests, like the passions, grow with what they feed on. No matter how we are brought to follow any course of action, unless it is forced upon us, we can hardly look upon it with utter indifference, and, even when it is compulsory, we tend to become reconciled and even interested. This is one of the reactions of the will upon knowledge. No man can compute the extent to which this simple law of mind smooths the pathway of life, making tolerable or even pleasant employment of what would otherwise be intolerable servitude. The principle underlies the great lesson that Jesus taught: "It is more blessed to give than to receive."

Choices Tend to Become Interesting.

Perhaps it may be said that interest is necessarily involved in making a choice. We do not need nicely to

weigh that question. It is a fact, at least, that choice does not always move in the line of the strongest attraction or of the least resistance,—that when the decision lies between two interests the will does not always prefer the stronger one. The contrary is distinctly true. Thus, a student who would prefer to go to the "links" to play golf can sit down at his table and prepare his lesson. If men were not capable of so acting life would not be worth living. The choice that is made may be a hard one, but when once the will decides, if it persists in the decision, new motives begin to rally to its support. Interest begins to grow, as remarked above. One can even become interested in "Hobson's Choice." More than this, self-respect, the shame following defeat, love of success and victory, pride, pugnacity, the delight that comes of conflict, all rally to the standard that has been set up. Moreover, these are perfectly legitimate motives for the teacher to appeal to in such contests.

Other Motives than Interest.

Continuity and intensity of mental effort are involved in effective attention. Continuous, intense application will completely master a problem or a lesson that casual and disconnected attention will not so much as touch. This every scholar and teacher knows full well.

Continuity and Intensity of Mental Effort.

Perhaps most teachers are content if only their pupils learn their lessons. But this is not enough: how do they learn them? Does the pupil spend more time and energy on the lesson than is really necessary? The man who constructs a good building is not of necessity a good builder, for questions of cost involving material and time must always be considered. So he is not a good teacher who gets pupils to learn their lessons regardless of

time and method. If a pupil can learn a lesson in thirty minutes, he should not be given an hour in which to do the work. If superfluous time is allowed him, he is almost certain to become careless, his wits go woolgathering, and he may not even prepare the lesson as well as he would have done had he been limited to a shorter time. The case may be stated still more strongly. As a rule, pupils will prepare their work better in thirty minutes than in double the time, provided thirty minutes is enough, unless they are held to a very close account by the teacher. Beyond a certain point the kind of preparation that the pupil makes for his recitation is quite apt to vary inversely as the amount of time that is allowed him to prepare it is lengthened. But this is not the most important thing. The pupil forms his habits of study while preparing his lessons, or he acquires his art of study while actually studying; and, in the long run, his art is of greater importance than the immediate lessons that are mastered. The habits of mind that he forms in the school mark the pupil long after his formal lessons are forgotten. Moreover, there is no worse habit for pupils to acquire than that of dawdling or dreaming over their books or lessons.

The Time Element Important.

Teachers should, therefore, allow their pupils time enough to do their work, but not more than enough. Furthermore, they should see to it that the work is done at the expiration of the time. In this way they will secure continuous and vigorous application. It is true enough that pupils of the same grade or class differ in the amount of time that they require to accomplish the work that is set for them; some are quicker, some slower. The difficulty

Teachers to Allow Pupils Sufficient Time.

that the facts suggest is incidental to the graded system of schools, and, in fact, to all class instruction; nor is it altogether easy to overcome this difficulty. It is an obvious suggestion, however, that extra work may be assigned to the brighter and quicker pupils, so as to give them ample employment while the slower and duller pupils are preparing their regular lessons.

The Intellectual Atmosphere of the School.

Something will be said in another place about the emotional climate of the school: here a word or two is called for relative to its intellectual atmosphere. This should be electrical with curiosity, energy, vigor, application. Pupils should be on their mettle. If these elements are secured, present lessons will be better learned, future habits of study will be better formed, and those intellectual conditions will be established which are most conducive to mental health. On the other hand, in the slack, feeble, nerveless school, the intellectual and moral vices thrive apace.

The Teacher a Factor.

Much depends upon the character and conduct of the teacher. The teacher who has a well-developed power of attention will be much more successful than the one who has no such power. If the pupils see the teacher consistently pursuing a chosen end, if they perceive unity of purpose and determination in all that he does, they are strongly influenced by the example. It may be due to sympathy, to imitation, or to some other cause, but there is no disputing the fact. The pupils fall into the prevailing current. This may be merely a result of automatic action, but it helps wonderfully on the active, voluntary side. On the other hand, if the pupils see that the teacher is vacillating or irresolute, if they discover that he has no settled aim, or, having one,

cannot pursue it, they respond to his spirit, unconsciously to themselves and to him. An energetic teacher will energize pupils, while a limp-minded one will make pupils like himself. There is a mental as well as a physical fatherhood and motherhood, and it is altogether of a higher character. This is one reason why the ancient Jews set the teacher above the parent: the one gave the child spiritual life; the other only natural life.

Attention depends largely upon favorable physical conditions. The health of the pupil, his physical tone, the suitability or unsuitability of the school furniture, the comfort or the discomfort of the schoolroom, the order in which the pupils are seated, the occurrence of recess or recreation periods—these are all things to be carefully considered. If children are sick, if the seats in which they sit keep them in continual pain, if the air is highly impure, if the temperature is much too high or much too low, if the light is painful to their eyes,—it is plain, or should be plain, that they cannot give close attention to their lessons. Men are beginning to understand much better than in former times the extent to which these physical factors directly affect study and school education, and thus become moral causes themselves. The new psychology is amplifying and enforcing the old lessons, if not discovering new ones. When a distinguished physician of London said that he regulated the number of blankets on his bed by the thermometer and not by his sensations, he may have been rather absurd, or at least mechanical; but to find moral causes in degrees Fahrenheit is a strictly rational proceeding.

Physical Conditions.

Teachers often make serious mistakes in seeking to

repress unduly the physical activities of children while in school. So far from such activities always retarding, they often accompany and facilitate sustained attention. Changes of position not only relieve the body but stimulate brain activity. On this point Ribot has written :

Physical Movements and Attention.

"Everybody knows that attention, at least in its reflected form, is at times accompanied by movements. Many people seem to find that walking to and fro helps them out of perplexity; others strike their forehead, scratch their head, rub their eyes, move their arms and legs about in an incessant, rhythmical fashion. This, indeed, is an expenditure, not an economy, of motion. But it is a profitable expenditure. The movements thus produced are not simple mechanical phenomena acting upon our external surroundings; they act also through the muscular sense upon the brain, which receives them as it receives all other sensorial impressions, to the increase of the brain's activity. A rapid walk, a race, will also quicken the flow of ideas and words."[1]

Ribot Quoted.

A full discussion of the subject would involve the relation of the motor activities to the intellectual activities. The child's growing voluntary attention must be protected against his spontaneous interests. If he is trying to fix his mind upon some chosen or appointed object, such as a lesson, he should be shielded as far as possible from other objects which may be of greater immediate attractiveness. It would be well indeed if such things could for the time be altogether excluded from his view. Dr. Harris speaks of "invading external influences," and the phrase is happily chosen, suggesting the opposition that exists between external objects that are immediately present to the senses and real intellectual activities, such as judgment and thinking.

Invading Influences.

[1] *The Psychology of Attention.* Chicago, The Open Court Pub. Co., 1890, p. 24.

At a time when much is said, and very properly too, about cultivating the senses through objective teaching, it is important to remember that the higher faculties cannot grow unless, for the time being, the world of sense is shut out from the mind. In fixing the mind upon a subject, it is sometimes of advantage to close the eyes, thus shutting out the sense world altogether. Some persons have even found a compensation for blindness in the greater command that they thus gained over their own minds. President Dwight, the distinguished scholar and theologian, who lived early in the century, according to Dr. John Todd, "used to consider the loss of his eyes a great blessing to him, inasmuch as it strengthened the power of attention and compelled him to think."

The principle that has been presented has many important applications, both in the home and in the school.

Temptations to be Removed.

If a boy is much interested in skating, and but little interested in books, it would plainly be an act of folly to dangle a pair of skates before his eyes at the very moment that he is trying to learn his lesson. The girl who is more interested in attending social parties than she is in learning grammar and history should not be tempted to indulgence in that direction, but those interests should rather be repressed. The rule involves the exclusion from the school of what are called distracting influences. Order should be maintained, not merely for the sake of moral discipline, but so that the pupils may be able to learn and to recite their lessons. Silence is one of the moral virtues in school. Then, the school environment is only less important than the internal regimen. Reverting to a former illustration, the boy who is trying to prepare his arithmetic lesson

should be protected, if it can be done, against the "invading external influences" of the brass band on the street.[1]

To be sure these matters are often difficult to regulate, and are sometimes wholly beyond the teacher's control. Bands of music, for instance, do not generally confer with teachers in the schoolhouses as to where and when they shall play All that can be said is that teachers must do the best they can in view of all the premises. Certainly it is fortunate that the phrase "distracting influences," like so many other phrases, is purely relative. What distracts A does not distract B, or distract him to the same extent; while what distracts either A or B does not distract him or distract him to the same extent at all times. Much depends upon association. Children accustomed to the life of a large city are not

Distractions.

[1] The principles set forth in this paragraph are even more important in the moral than in the intellectual life. To quote from Dr. Bain:

"The peculiarity of the moral habits, contradistinguishing them from the intellectual acquisitions, is the presence of two hostile powers, one to be gradually raised into the ascendant over the other. It is necessary, above all things, in such a situation, if possible, never to lose a battle. Every gain on the wrong side undoes the effect of several conquests on the right. It is therefore an essential precaution so to regulate the two opposing powers that the one may have a series of uninterrupted successes, until repetition has fortified it to such a degree as to cope with the opposition under any circumstances. This is the theoretically best career of moral progress, not often realized in practice. . . . We gain nothing by leaving a hungry child within reach of forbidden fruit; the education not being yet sufficiently advanced strengthto give to the motive of restraint. We begin by slight temptations on the one side, while strongly fortifying the motives on the other; and if there are no untoward reverses to throw back the pupils, we count upon a certain steady progress in the ascendency that we aim at establishing."—*The Emotions and the Will.* New York, D. Appleton & Co., 1876, pp. 440, 441.

disturbed by the noises that surge around the schoolhouse, while country children translated to such a spot can do little or nothing until the novelty of the situation has worn off. It is very important for young people to learn to control their minds, even in the midst of confusion and excitement, but they will never learn that lesson if they are distracted beyond measure.

Aesthetics in the Schoolroom.

Much is said nowadays about beautifying school grounds and the schoolroom. The subject is an important one, and shares the new interest that has sprung up of late years in aesthetic development. But the matter may be overdone. In fact, there is reason to fear that schoolroom decoration will become a fad, if it has not already done so. At least one thing is clear, viz.: the schoolroom may be made so attractive to the eye or the ear, sensuous elements may be so accumulated, that real intellectual labor will either be carried on with much difficulty or be wholly stifled. A piano is a desirable piece of schoolroom furniture, if properly used, but a singing canary would be a nuisance.

The Two Attentions should Act Together.

It is a painful state of affairs in school when active attention draws the pupil in one direction and passive attention in another. Will and interest are now opposed each to the other. When a teamster wishes to move a heavily loaded wagon he does not hitch one team of horses at the front, and another at the back, and then start them in opposite directions, but he hitches both teams at the front and starts them in the same direction. This is one of the teacher's most practical problems — to get the two attentions, active and passive, to work freely together towards the same point. How is this to be done? How shall the teacher bring interest to

his side in the struggle to focalize, and to keep focalized, the pupil's mind? Many suggestions have already been offered that bear more or less directly upon this point, but the time has now come for a more direct and a more practical answer to the question.

The Teacher to Summon Old Interests.

The teacher's first duty is to lay hold of such of the pupil's old interests as can be made available. Attention is possible only on the two conditions, that the child shall have something to pay attention *with* and something to pay attention *to*. At this point we meet the doctrine or the fact of apperception and its application to learning and teaching. As Professor James says, the teacher who wishes to engage the attention of his class must knit his novelties on to the things of which the pupils already have perceptions. The old and familiar is readily attended to by the mind and helps, in turn, to hold the new. To apperceive is to perceive a new thing through an old one. Accordingly, the more a pupil knows, the greater his store of facts and ideas, the wider his range of experience, that is, the more numerous and the richer his apperceiving centers, the easier it is to interest him in new things. Still the new things must not be too new, that is, too unlike the old things. The progress of knowledge is from the known to the related unknown.

The Teacher to Create New Interests.

The teacher's second duty is to develop new interests or new centers of interest. Still, the fact just stated must be borne in mind—the new must not be too unlike the old. In fact, what is here called the creation of new interests is not so much, perhaps, their absolute creation as it is their transference from one subject to another subject, or from one thing to another thing. Perhaps it can be psychologically shown

that all interests, wide and diversified as they become, are developed from a few ultimate roots. Characterized from the teacher's point of view, the transference of interests is sometimes called borrowing. Every person who has given particular thought to the matter has been surprised to see the extent to which such borrowing is actually carried on in the mental life. It is a process of first importance to teachers.

Borrowing Interests: An Example.

An example of a borrowed interest may be taken from common life. A lady who was in feeble health for a number of years found congenial employment, as well as relief from pain, in the care of a small collection of potted plants. Her interest, which was a pure outgrowth of ill health and enforced abstinence from her accustomed employments, tended to grow beyond the limits of her own small collection. On her death, her mother, an elderly woman, who had never shown any real interest in flowers, and had found plenty of occupation in other things, became attached to this collection of plants solely because they had belonged to her dear daughter. Nor was this all; these particular plants created a growing interest in other plants, which ended only with the lady's life. Coming back again to an old topic: interests far from being determinate in number and permanent in character, are rather of easy propagation and of a plastic nature.

Coming nearer to the school, Ribot gives this interesting example of using one interest to build up another:

A Second Example.

"A child refuses to learn how to read; it is incapable of keeping its mind fixed upon letters that have no attraction for it; but it will gaze with eagerness upon pictures in a book. 'What do those pictures mean?' Its father answers: 'When you know how to read, the book will tell you.' After a few talks of

this kind the child finally gives up; at first it sets about the task lazily, but afterwards it becomes accustomed to its work, and finally evinces an eagerness that needs to be checked. In this we have an instance of the genesis of voluntary attention. It was necessary to graft upon a desire natural and direct, a desire artificial and indirect. Reading is an operation that does not possess an immediate attraction, but as a means to an end it has an attraction,—a kind of borrowed attraction,—and that is sufficient: the child has been caught in a wheel-work, as it were, and the first step has been accomplished."

Ribot also quotes an example from Perez as follows:

"A child six years old, habitually very *inattentive*, went to the piano one day, of its own accord, to repeat an air that pleased its mother; and it remained there for over an hour. The same child, at the age of seven, seeing its brother engaged about some of his holiday duties, entered and seated itself in its father's study. 'What are you doing?' asked the nurse, astonished at finding the child there. 'I am doing a page of German; it is not very amusing, but I wish to give mamma a pleasant surprise.'" [1]

A Third Example.

In the first of Ribot's cases, the child is desirous of reading that he may understand the pictures. In the second case, the child practices the music lesson and learns the page of German that he may please his mother. The first is a selfish, the second a sympathetic, motive; but both well illustrate how the teacher may gain his ends by borrowing a force that already exists. The second example suggests the reflection that sympathy is a force that may be drawn upon almost *ad libitum*. A pupil who will not learn a lesson from personal interest, will often learn it to surprise his mother or to please his teacher. This being so, the emotional adjustment of the pupil to his teacher becomes at once an important and practical question, as we shall see more clearly in another place.

Remarks on Second and Third Examples.

[1] *The Psychology of Attention.* Chicago, Open Court Pub. Co., 1890, p. 38.

What has been said about building up one interest through another one suggests the dependence of studies upon one another, or what is known in the science of education as the problem of correlation, or of correlated studies. The practical significance of this problem, which will not be treated in this place at length, is that the wise teacher uses one study to teach another. Changing the form of the expression, correlation consists in organizing studies, or the teaching of studies, so as to make work done in one subject contribute to progress in one or more other subjects. Passing by a larger topic, or correlation proper, a pupil's interest in geography is invoked by the teacher of history, and *vice versa;* or the teacher lays all the pupil's attainments under contribution in teaching literature, which comes nearer than any other subject to being a full expression of human life.

A Question of Correlation.

Ribot thus describes the methods to be employed in calling out and solidifying voluntary attention:

"In the first period, the educator acts only upon simple feelings. He employs fear in all its forms, egotistic tendencies, the attraction of rewards, tender and sympathetic emotions, as well as our innate curiosity, which seems to be the appetite of intelligence, and which to a certain degree — no matter how weak — is found in everybody.

Ribot on Calling Out Active Attention.

"During the second period, artificial attention is aroused and maintained by means of feelings of secondary formation, such as love of self, emulation, ambition, interest in a practical line, duty, etc.

"The third period is that of organization; attention is aroused and sustained by habit. The pupil in the class room, the workman in his shop, the clerk at his office, the tradesman behind his counter, all would, as a rule, prefer to be somewhere else; but egotism, ambition, and interest have created by repetition a fixed and lasting habit. Acquired attention has thus become a second nature, and the artificial process is complete. The mere fact of being placed in a certain

attitude amid certain surroundings brings with it all the rest; attention is produced and sustained less through present causes than through an accumulation of prior causes; habitual motives having acquired the force of natural motives. Individuals refractory to education and discipline never attain to this third period; in such people voluntary attention is seldom produced, or only intermittently, and cannot become a habit." [1]

The Passage from Passive to Active Attention.

Thus far, I have conducted the argument as though, in developing attention, everything depended upon the teacher. In the early stage of education this is the precise fact. The child's will is feeble, while external attractions are strong; and it is long before he can direct his own attention. The teacher must, therefore, direct it for him. But in time the child will become able to take a part in the work, and still later to take complete charge of it. Hence the teacher should progressively withhold his direction and throw the pupil more and more upon his own resources. It is only by using his own will that the pupil learns *how* to use it. The transition is one to be closely watched, for it is hard to say whether it is more harmful for the teacher to withdraw assistance too soon or too rapidly, than to continue it too long. Sooner or later the pupil will become self-conscious in the matter; he will observe the fact of attention, reflect upon it more or less, and, in some measure, shape his own course accordingly. At this stage the teacher can render him some real assistance by furnishing judicious instruction concerning attention and habits of study. But this stage of development must not be anticipated.

It is therefore necessary for us to give attention to this more advanced stage of mental growth — the stage when

[1] *The Psychology of Attention.* Chicago, The Open Court Publishing Co., 1890, pp. 39, 40.

pupils are able to consider what is good for them, and so to pay some attention to the art of study in a reflective sense. Furthermore, teachers are directly concerned in the subject, for they are, or should be, students themselves, interested in all that relates to their own self-cultivation. A future chapter will be devoted to the subject.

PARALLEL READING. — *The Principles of Psychology*, William James. New York, Henry Holt & Co., 1890. Chap. XXVI. ("The Will"). *The Art of Securing Attention*, Sir J. G. Fitch. Syracuse, C. W. Bardeen, 1885.

CHAPTER XVII.

THOROUGHNESS.

THOROUGHNESS is the frequent theme of lecturers and writers on education, and of critics outside of the profession who essay to pass judgment upon teachers and schools. The pupil and the teacher alike are praised or blamed according as they are judged to be thorough or the contrary,—the pupil in learning, the teacher in teaching. There are three decisive reasons for emphasizing thoroughness in education.

1. Thoroughness is essential to a correct understanding of the matter immediately in hand, whether it be a study, lesson, or even some subdivision of a lesson. Without it there can be no correct ideas, no clear, sound knowledge. All competent persons who have had an opportunity to test it know full well how incorrect, or vague and untrustworthy, is much of what popularly passes for knowledge. The ideas that many men form of things that they see, the meaning that they get out of an article or even a paragraph read in the newspaper, their general understanding of a speech or sermon that they have heard—these would be surprising if they were not such familiar facts. The explanation is that these persons do not give real atten-

Present Value of Thoroughness.

tion to the matter, or do not give attention enough to enable them to get a sound understanding of it. The mind is like the quick, sensitive plate of the camera, but it is not quick enough to receive clear, strong pictures of objects on a single short exposure.

What has now been said is true of perceptive or simple concrete ideas, but if possible, it is even more true of general ideas, and of the conclusions that are reached by thinking. One reason why so much thinking is wrong is that it starts with imperfect ideas of the things that are made the objects of thought. In the following passage Dr. Faraday shows how necessary clear and precise ideas are to secure the proper exercise of the judgment:

Dr. Faraday on Clear Ideas.

"One exercise of the mind which largely influences the power and character of the judgment is the habit of forming *clear and precise ideas*. If, after considering a subject in our ordinary manner, we return upon it with the special purpose of noticing the condition of our thoughts, we shall be astonished to find how little precise they remain. On recalling the phenomena relating to a matter of fact, the circumstances modifying them, the kind and amount of action presented, the real or probable result, we shall find that the first impressions are scarcely fit for the foundation of a judgment and that the second thoughts will be best. For the acquirement of a good condition of mind in this respect, the thoughts should be trained to a habit of clear and precise formation, so that vivid and distinct impressions of the matter in hand, its circumstances and consequences, may remain."[1]

One who understands the nature of the child mind and who considers the defects and tendencies of teachers,

[1] See a valuable paper entitled "The Education of the Judgment," in *The Culture Demanded by Modern Life*, edited by E. L. Youmans. New York, D. Appleton & Co., 1867, p. 206.

should feel no surprise that school work is often anything but thorough.

The training of the judgment is a matter of the first importance. Dr. Franklin invented a device for handling doubtful questions, or questions arising in daily life, that he entitled "Moral Algebra." When circumstances admit of its use, it is really an admirable method of reaching sound conclusions and of disciplining the judgment.[1] These are its essential elements:

Franklin's "Moral Algebra."

Divide half a sheet of paper into two perpendicular columns by a straight line, writing over the one *pro* and over the other *con*. Then set down the various reasons, arguments, or motives that are in favor of the pending question, and those that are against it, allowing several days, if necessary, for them to present themselves to the mind. When this process has been completed, estimate carefully the weight of the several arguments. Next, if two opposing arguments seem to be equal, strike them off, or if one on one side appears to balance two on the other side, or if two on one side balance three on the other side, strike off the three or the five. In this way a determination is reached in the same manner as in the familiar arithmetical operation called "cancellation." The advantage of this method is that it leads to diligence in collecting proofs affecting the question *pro* and *con*, compels care in weighing them, and brings them all before the mind in one view before determination is reached. These so called doubtful questions are difficult, as Franklin explains, chiefly be-

[1] Franklin's letter explaining this method is quoted by Dr. Bain in *The Emotions and the Will*. New York, D. Appleton & Co., 1876, pp. 413–414.

cause all the reasons *pro* and *con* are not present in the mind at the same time. This is the source of "the various purposes or inclinations that alternately prevail, and the uncertainty that perplexes us."

2. Thoroughness in the matter immediately in hand is essential to future thoroughness and progress in knowledge. What is learned to-day is the foundation of what will be learned to-morrow; and, if the foundation is weak and insecure, so will the superstructure be. The pupil's theoretical or scientific arithmetic is an outgrowth of his concrete number work. His knowledge of the natural and physical sciences is built up on the basis of his first contacts with the natural or physical world. His history and his civics are developed out of his daily observations of men in the little society or social world about him. His moral and religious conceptions originate in his personal experiences in the home and in the social circle. "If a man love not his brother whom he hath seen," it has been asked, "how can he love God whom he hath not seen?" What could be more natural or inevitable, then, than that the false or imperfect ideas which characterize these early subjects of knowledge should more or less mark the whole later mental and moral development?

Future Value of Thoroughness.

3. The final reason why school work should be well done is that, while the pupil is doing it, he is building up mental habits which will cling to him through life. This point has been dwelt upon in dealing with attention, but the fact should again be emphasized that good teaching leads to two results: one, the acquisition of knowledge; the other, mental discipline. The mind is furnished and formed at the same time, but only too often in its formation the element of discipline is overlooked in whole

or in part. It is not true, indeed, that there is a formal mental habit called thoroughness. The boy who is thorough in studies at school does not always make a thorough business or professional man; neither does thoroughness in one study or pursuit necessarily imply this habit in another, though it tends to beget it in related things.

Lack of Thoroughness in the Schools.

To recur to a topic that has already come before us, the complaint by teachers in the schools is incessant and insistent, that pupils, as a class, or at least in large numbers, cannot do their proper work because they have not been properly prepared for it. The cry becomes louder rather than fainter as we near the top of the educational ladder. No doubt some, and probably many, of these murmurings are unreasonable. Sometimes they proceed from inefficient teachers who seek thus to conceal their own defects and failures; sometimes, from enthusiastic teachers who place their standards too high and have failed to reach them; but, taken together, they represent a large amount of undeniable truth. Some of the work attempted in schools is not done at all, and much of it is but half done.

Sound and Unsound. Knowledge

Now the worst of it is that, as a rule, it is difficult to substitute sound knowledge for unsound knowledge. Ideas that are lacking in clearness do not always become clarified or definite with time. For this there are two reasons, one of them being that the pupil or adult is too impatient to go forward to be too willing go back and "clear up" his mind. It is hard for him to believe that he does not understand the matter already, and he is often restrained by a false pride from taking what he considers backward steps, although

such steps may in reality lead forward. What is more, a false or an erroneous idea once lodged in a person's mind stands in the way of his forming a true or a correct idea. His mind is "littered up," so to speak; or, as the physiological psychologists say, the nervous currents are running in wrong channels and it is hard to change them. It is the same way with thought. In thinking, the mind runs over a certain path connecting certain ideas, and if, for any reason, this path swerves to the right or to the left, it will be found a hard thing to straighten it afterwards. The process called thinking consists simply in putting things or ideas together in certain relations, and if they are not properly related a false view of the whole subject is given, which it is not easy to change. Experience teaches us how difficult it is to change a man's fixed ideas, judgments, or opinions, that is, to make over his mind. Here we strike the psychological fact that lies back of the stress which is so deservedly placed upon first impressions — they are apt to be lasting, no matter how partial or imperfect they may be. All experienced teachers know how hard a task it is to teach a subject properly to a pupil who has already been taught improperly. The common opinion is that it is easier to take the pupil fresh, at the beginning, and there is much evidence to support that opinion.

Clear Ideas and the Will.

The relations of the intellect and the will, or of knowledge and choice, have already come before us in a former chapter. However, it is important to state here that one of these relations involves the practical question of will-training. Promptness in making the choice, and firmness in the pursuance of chosen ends, are greatly promoted by a clear understanding of the objects from which the choice is to be made, and of the nature

and relations of the object chosen. It is just as absurd to ask a man to choose among objects of which he is ignorant as it is to ask him to believe a proposition that he has never heard. A clear perception of the end or aim of a lesson, (see the chapter on "Attacking the Lesson,") contributes greatly to the ability of the pupil both in making the attack and in sustaining it.

Some readers may think that enough has now been said, and that the subject should be dropped. The fact is, however, that much that is important still remains to be considered.

Thoroughness a Relative Term.

First, it must be taken into account that the word "thoroughness" has no fixed meaning, but is a relative term. Thoroughness at one time and place is not thoroughness at another time and place. Thoroughness in one person is not thoroughness in another person, and thoroughness in the same person is not the same thing at different times. The text-books used in schools contain a very small part of the matter that is found in the great works written on the same subjects. Compare, for example, the school histories of the United States with Dr. Winsor's *Narrative and Critical History of America*, or the school geographies with Reclus' great work entitled *The Earth aud its Inhabitants.* Still more, even such monumental works as these by no means exhaust the subjects to which they are devoted. Furthermore, different minds differ in respect to the matter that the book actually presents—the teacher's grasp is less strong than that of the author, while the pupil's grasp is still weaker than that of the teacher. The growing mind learns to know familiar things better than it knew them at first, as well as it learns to know new things. Thus words and

names constantly come to express more and more meaning. Our early ideas may be likened to forms or vessels into which experience is continually pouring new meaning or new thought. The pupil in the eighth grade cannot have Francis Parkman's conception of the French and Indian War, or Carl Ritter's conception of the Continent of Europe, no matter how long or how intensely he may dwell upon the subject. The clear and precise ideas for which Dr. Faraday so justly pleads are not fixed ideas or quantitative ideas. Perhaps not one man in a million has Faraday's own clear and precise conceptions of the fundamental facts of physics and chemistry. Accordingly, the teacher in the school constantly faces the question. How far shall clear ideas and clear thinking be insisted upon?

"Grooving" the Mind.

The matter may be put in another way. Mental action tends to fixity and permanence—tends to flow in habitual channels, or, as one may say, tends to groove and channel the mind. Now a certain amount of such grooving or channeling is essential to mental efficiency. It is just as necessary that mental energy, to be effective, shall be concentrated in particular lines or at particular points as it is that steam, to be effective, shall be confined in a steam chest and cylinder; diffusion or dissipation of force is just as fatal in the one case as in the other. Without this tendency to permanence in modes of mental action, education would be impossible, and there could be no such thing as acquired character. At the same time, the mind may be overgrooved, that is, the grooves may become so deep and so narrow that the man is practically incapable of effective action outside of his routine, or, as the saying is, outside of his ruts. Sound education oscillates between the

two extremes of too slight and too deep grooving of the mind, the result being that the teacher faces the very practical question, How far shall this work of grooving be carried?

Dr. W. T. Harris on Overgrooving.

Dr. W. T. Harris has given much attention to this subject the last few years, approaching it, however, by a somewhat different path. It is easy, he argues, for any special formal discipline, when continued too long, to paralyze or arrest the growth of the mind at any stage. The overcultivation of the verbal memory tends to arrest the growth of critical attention and reflection. Memory of accessory details, so much prized in the school, is often cultivated at the expense of an insight into the organizing principle of the whole and the causal nexus that binds the parts. So, too, the study of quantity, if carried to excess, may warp the mind into a habit of neglecting quality in its observation and reflection. He contends that an excess of parsing and grammatical analysis of works of literary art tends to destroy literary appreciation and to develop bad habits of mind. A child, overtrained to analyze and classify shades of color, as is sometimes done in primary schools where stress is laid on objective teaching, might, in later life, visit an art gallery and make an inventory of colors without getting even a glimpse of a painting as a work of art. Similarly, an excess of experiments in teaching science may render the pupils incapable of grasping the principle involved. Touching mathematics, Dr. Harris writes as follows:

"The law of apperception, we are told, proves that temporary methods of solving problems should not be so thoroughly mastered as to be used involuntarily, or as a matter of unconscious habit for the reason that a higher and a more adequate method of

solution will then be found more difficult to acquire. The more thoroughly a method is learned, the more it becomes part of the mind, and the greater the repugnance of the mind toward a new method. For this reason, parents and teachers discourage young children from the practice of counting on the fingers, believing that it will cause much trouble later to root out this vicious habit, and replace it by purcly mental processes. Teachers should be careful, especially with precocious children, not to continue too long in the use of a process that is becoming mechanical; for it is already growing into a second nature, and becoming a part of the unconscious apperceptive process by which the mind reacts against the environment, recognizes its presence, and explains it to itself. The child that has been overtrained in arithmetic reacts apperceptively against his environment chiefly by noticing its numerical relations—he counts and adds; his other apperceptive reactions being feeble, he neglects qualities and causal relations. Another child, who has been drilled in recognizing colors, apperceives the shades of color to the neglect of all else. A third child, excessively trained in form studies by the constant use of geometric solids and much practice in looking for the fundamental geometric forms lying at the basis of the multifarious objects that exist in the world, will, as a matter of course, apperceive geometric forms, ignoring the other phases of objects."[1]

The subject can be pursued indefinitely, but one or two further instances will answer the present purpose.

Memory and Judgment.

Lord Kames, for example, advanced the proposition that capacious memory and sound judgment are seldom found in company.[2] His argument is that memory involves the slight or loose relations of ideas, while judgment rests upon the strong or close relations, and that the two mental habits are incompatible. The truth turns, no doubt, upon the extent to which the individual relies upon his memory or his judgment. Either one may be cultivated, and especially

[1] *Report of the Committee of Fifteen on Elementary Education.* New York, American Book Company, 1895, pp. 56, 57.

[2] *Elements of Criticism.* New York, American Book Co., 1870, p. 33.

the memory, at the cost of the other, but there is no necessary antagonism between the two mental faculties.

It is a familiar fact that precocious development in children is commonly followed by arrested development. Inheritance has here something to answer for, but something is no doubt due to the early overgrooving of the child's mind. Two practical questions that deeply affect the teacher's work arise at this point, and will be briefly considered. How long shall a pupil be kept on the same lesson? How long on the same study?

Precocious Children.

A teacher, we will suppose, keeps a pupil still at work on a lesson or study to which he has already devoted much time for the reason that the pupil is not yet thorough in his knowledge. This may be perfectly right, or it may be wholly wrong. If the pupil's knowledge is really defective, when measured by a proper standard, he should, as a rule, be required to dwell upon the work still longer. But if his knowledge is, comparatively, as perfect as he is likely at present to make it, then such a course will involve a waste of both time and energy. Worse even than this, it may involve the impairment or destruction of interest in the lesson or study, or even in the school itself. When a pupil has reached a certain degree of excellence in a lesson or subject, the increased knowledge gained by longer "pegging away" is no compensation for the effort that it costs and the risk of disgust that it involves. In teaching reading, for example, the blunder is often committed of keeping the pupil at work on the same old lesson, when he is weary of the monotony and is craving something fresh, because, as the teacher thinks, he can still learn to read it better. It is the same in literature. The teacher here

Keeping Children Too Long on a Lesson.

not unfrequently tries to make the work too intensive, and does not cover enough ground either to give breadth of view or to keep up the interest of the class. It must be remembered that a child looks upon a lesson much as he looks upon a picture; he tires of it, and demands something new. It is very true that to overcome this love of change, or to hold the pupil to his work, is the great problem of cultivating the attention; but the teacher must remember that this can be done only in a measure and by degrees.

It is obvious enough that the principle involved has an important application in the matter of promotion. It is often necessary to require pupils to go a second time over a certain portion of the work that they have done. The good of the pupil and the tone of the school both demand that this shall be done. Still, pupils should by no means be refused promotion in the flippant spirit that is characteristic of some teachers and superintendents. It sometimes happens that the pupil in going over this work a second time falls below the record that he made the first time. At the close of a term's work in algebra I once thought it my duty to deny a young man promotion with his class, and did so. It so happened that he made the same journey with me the second time, and what was my surprise when I found that his work the second term was inferior to what it had been the first term. He had actually lost ground and was less deserving of promotion now than he had been three months before. This experience led me to study the subject with more care than I had done before, and to be more careful in deciding upon such questions. It is no doubt true that such a case as this is exceptional, but still it teaches a lesson. Experienced teachers know how difficult it is to maintain

Promotions.

the interest of pupils in their work when they have been refused promotion. Many actually fall out of school altogether for this reason. These facts do not constitute a reason why all pupils should be promoted when the set time for making promotions comes, but certainly there can be no good reason for maintaining a regimen in the schools that involves going backward rather than forward. The question of promotion, as well as the question of daily progress, faces both ways—backward and forward. What has the pupil done? What is he capable of doing? These are the two questions that teacher and superintendent must answer. Moreover, teachers and superintendents do not always see clearly that the first of these questions is of importance mainly, if not solely, because it bears upon the second.

What has now been said relative to repeating lessons and refusing promotion in no way invalidates what was said in the earlier part of this chapter about the value of thoroughness. The key thought of the whole discussion is that thoroughness is relative, and that teachers and superintendents must learn to take all the facts into account.

A Word of Caution.

Perhaps a cautionary remark should be made in regard to a single point. It must not be understood that a series of promotions necessarily involves final graduation. Graduation in any formal sense, stands for the completion of a certain amount of work in a reputable manner, which again is a relative expression. It means this or it means nothing. It follows, therefore, that if a pupil has not done this work in a way that is measurably satisfactory he should not be given a diploma certifying that he has done so. That would both lower the standard of the school and be immoral into the bargain. There may be, and often are,

good reasons for allowing the pupil to pass along in a study until he stands upon the verge of graduation, and then declining to graduate him. As a matter of course, the teacher or principal should cause the pupil to understand when he is promoted exactly what his status is and the causes that have produced it. Naturally, too, the pupil's familiar friends should be duly informed of the facts in the case. It is true enough that the presence of a pupil who has not done satisfactory work in a class may impede the progress of the class, and this fact is to be taken into the account in settling the question of promotion. The practical disposal of questions of promotion and graduation is difficult, calling for clear discrimination, sound judgment, good feeling, and no little moral courage. The more rigid the classification the greater the difficulty.

Public Interest in Promotions.

The public often takes a hand in the discussion of promotions in schools. Upon the whole there can be no doubt that it favors a liberal policy. At the same time, men are found in almost every community who gruffly ask such questions as these: "Why should pupils be sent to the high school before they have mastered the studies in the grades?" "Why should a boy take up algebra before he is perfect in arithmetic?" "Why should he begin a foreign language before he has first mastered his own language?" While mistakes are frequently made at these points, those who ask such questions, as a class, imperfectly understand the matter. They do not see that the pupils whom they have in mind cannot, save in a very limited sense, master their elementary studies, or that such a thing as overgrooving is not only possible but easy. Still less do they understand the dependence of the lower studies upon the higher ones, as of arithmetic upon algebra.

They fail to comprehend how it is that, in a certain very important sense, imperfect knowledge is absolutely necessary to progress in knowledge. It is perfectly true that school children should know more than they do know, and that the schools should be brought up to a higher standard. The true remedy, however, is not to refuse pupils promotion more frequently than at present, or to compel them to "drum" longer over the same lessons, but it is rather to teach them better while they are making their daily progress.

Dr. Bain on Narrowness and Breadth.

In a practical sense, thoroughness does not mean that the pupil shall seek to cover the whole field, or even that he shall cultivate intensively so much of it as he seeks to compass. To attempt either the one or the other may be fatal to the very thoroughness that he seeks. Touching the art of study, Dr. Alexander Bain lays down three fundamental propositions which may be stated as follows:

1. In the early stages of education, instruction must be narrow.

2. Instruction must be thorough.

3. Only when the pupil is completely at home in the main ideas — only when one single line of thought has been wrought into his mind—should the teacher begin to be discursive and widen the path.

Dr. Bain explains these propositions as follows:

"Our first maxim is—'Select a Text-book-in-chief.' The meaning is that, when a large subject is to be overtaken by book study alone, some one work should be chosen to apply to, in the first instance, which work should be conned and mastered before any other is taken up. There being, in most subjects, a variety of good books, the thorough student will not be satisfied in the long run without consulting several, and perhaps making a study of them all; yet, it is unwise to distract the attention with more than one, while the elements

are to be learnt. In Geometry, the pupil begins upon Euclid, or some other compendium, and is not allowed to deviate from the single line of his author. If he is once thoroughly at home on the main ideas and the leading propositions of Geometry, he is safe in dipping into other manuals, in comparing the differences of treatment, and in widening his knowledge by additional theorems, and by various modes of demonstration."[1]

Remarks on Quotation.

If we remember that "narrow," "broad," and "thorough" are all relative terms, having no quantitative meaning, we must assent to all these propositions. Narrowness must precede breadth, and superficiality, depth. To attempt too much is to fail in everything. What folly it is, for example, in teaching history, to accustom the pupil to compare, interpret, and discuss facts before he has any sufficient supply of them on which to exercise his reflective faculties! In dealing with the history of a country or nation, the first thing to be done, after the purely story period is passed, is to fix in the pupil's mind firmly the main points — an outline, a framework, in which he can dispose and arrange minor facts and details as he acquires them; or, to change the figure, to provide his mind with a supply of hooks and pegs on which he can hang up in proper order and in due relation new facts and ideas as he masters them. To quote Dr. Bain once more:

"History is preëminently a subject for method, and, therefore, involves some such plan as is here recommended. Every narrative read otherwise than for mere amusement, as we read a novel, should leave in the mind—(1) the chronological sequence (more or less detailed); and (2) the causal sequence, that is, the influences at work in bringing about the events. These are best gained by application to a single work in the first place; other works being resorted to in due time."[2]

[1] *Practical Essays.* New York, D. Appleton & Co., 1884, pp. 215, 216.
[2] Ibid., p. 220.

PARALLEL READING. — *On the Correlation of Studies*, W. T. Harris, (*Report of Committee of Fifteen on Elementary Education.*) New York, American Book Company, 1895. *The Education of the Judgment*, Dr. Faraday, in *The Culture Demanded by Modern Life*, edited by E. L. Youmans. New York, D. Appleton & Co, 1867.

CHAPTER XVIII.

THE RELATIONS OF FEELING TO STUDY AND LEARNING.

THE human mind is one, but it has three faculties, — the intellect, the feeling, and the will. What we mean when we call these mental faculties is that the mind acts or manifests itself in three ways: it knows, it feels, and it wills. The same faculties are also called knowledge, sensibility, and choice. These three forms of mental activity are also known as elements or phases of consciousness. It will be seen that each of the three words is used in a double sense: it is used as the name of a faculty or process and also as the name of a product. Thus, will may be regarded both as a particular power or kind of mental activity, and as the result of such activity.

Intellect, Feeling, and Will.

In preceding chapters much has been said of the relations of the will to the intellect, that is, to study and learning, and reference has also been made to the relations of the feeling to the same factors. The time has now come to subject the second of these topics to formal treatment. The fact is, however, we have already dealt with some of its aspects, for interests are but forms of feeling. We shall do well first

Relations of the Primary Faculties.

to look at the relations of the three primary mental faculties or elements of consciousness in a general way. Dr. James Sully gives these illustrations:

Dr. James Sully Quoted.

"A boy sees a flower growing on the wall above his head. He raises his body and stretches out his hand to pluck it. This is a voluntary act. What happens here? The sight of the flower calls up to his mind a representation of the pleasure of smelling it or carrying it in his button-hole. This at once excites a desire for or impulse towards the object. The desire again suggests the appropriate action which is recognized as the means which will lead to the desired end. In other words there is the *belief* (more or less distinctly present) that the action is fitted to secure the result desired. . . .

"A girl playing in the garden suddenly feels heavy drops of rain and hears the murmurs of thunder. She runs into the bower. Here the action is similar; only that it is due rather to an impulse away from a disagreeable experience than to an impulse towards an agreeable one. We say that the force at work here is not a *desire* for something pleasurable, but an aversion to something painful."[1]

Remarks on These Examples.

These examples reveal the presence, in each of the two cases, of the three elements of consciousness. The boy knows the flower, the girl the drops of water and the thunder; their knowledge awakens, in the mind of the one an impulse towards the object, in the mind of the other an impulse away from it. The result of the impulse in the one case is the choice to pluck the flower, in the other the choice to go into the bower, followed in either case by the appropriate action. The circle is completed in both cases. The examples are perfectly true as far as they go, but they do not bring out clearly the one important fact of the reaction of feeling

[1] *Outlines of Psychology.* New York, D. Appleton & Co., 1884, p. 574.

and will upon knowing. We will invent illustrations of our own.

New Examples.

I am sitting at my desk engaged in writing, when the door of the room begins to open; my attention is arrested and my curiosity aroused; I turn my eyes towards the door to see who is about to enter, and discover, by his dress, that it is a messenger from the telegraph office. I see a dispatch in his hand, which he holds out to me; my curiosity or desire is further stimulated; I stretch out my hand, seize the dispatch, tear it open and read it; the dispatch informs me that a business venture in which I am engaged has turned out favorably, or that a friend is sick. This information begets fresh interest, and this again leads on to new choices, such as the decision to send a return dispatch or to undertake a journey, until the whole cycle is completed.

A child playing on the floor gets a music box in his hands; his curiosity is awakened by the object and he begins to experiment with it, turning it over and beating the floor with it; he strikes by accident a key and a sound is produced, thus enlarging his knowledge; his interest is increased and he strikes again; and thus his knowledge, his feeling, and his will go on acting and reacting upon one another until the series of experiences is worked out and the child is for the time satisfied.

Knowledge and Feeling.

There is perhaps nothing more wonderful in the operations of the human mind than the action and interaction of the elements of consciousness. In the last two examples the three faculties are all present and active — intellect, feeling, and will; or the examples present to our view, in perfect combination, the three elements of consciousness — knowledge, sensibility, and choice.

The central thought of this chapter is that the teacher must cultivate in the pupil those states of feeling that harmonize with study and the acquisition of knowledge. In certain conditions the three elements of consciousness move together, upward and downward, on a sliding scale. The more one knows the more he feels, and the more energetic is his will. The direct stimulation to activity of any one of the so-called faculties is the direct stimulation of the other two. But this is true only so long as the stimulation and the resulting activity are comparatively moderate in their measure. This is an important law of mental action.

Direct Variation.

In the second place, when a certain stage of stimulation and activity has been reached, the three elements begin to vary inversely: the more of any one element, the less of either of the other two. Excluding the will for the present, we find that strong intellectual activity is accompanied by weak feeling, strong feeling by weak intellectual activity. In a sense, the more one knows the less, for the time, he feels, and the more one feels the less he knows. There are apparent exceptions, perhaps real ones, but such is the rule or the law. Thus, you do not feel deeply when you are absorbed in a mathematical problem or in a difficult piece of translation; neither do you think clearly and strongly when you are moved by excited feelings, no matter whether pleasant or painful. Fresh news of some great good fortune or great evil fortune incapacitates the mind for its best intellectual effort. Cold indeed is the student who can apply himself to his studies with vigor the very hour that he hears of his father's death. Wordsworth thought slightly of the man who could botanize on his mother's grave: it is the place, he thought, for emotion rather than for scientific investiga-

Indirect Variation.

tion. The cause of these inverse variations of mental forces is, perhaps, that the mind has so much power to expend, and that, if much of this power is used in one way, little can be used in another way. But, no matter what the explanation is, there is no mistaking either the law or its interpretation.

There are still other facts to be considered. Age is a factor in the problem. A child's feelings are more active than a man's, not only absolutely but relatively, in the same way that his logical faculties are less active. Training and discipline also enter into the problem. Persons of the same age differ widely in the coördination of the primary mental faculties. The savage and the undeveloped man show much of the spontaneity and impulse that mark the child. Nor is this all: inheritance remains to be considered. Persons of equal general cultivation, as well as of the same age, differ sometimes almost as widely as children differ from adults. Some persons show habitual self-control from an early age, while others have little self-control when far advanced in life. It is a matter of temperament. In fact we classify men with respect to the relative prominence in their make-up of the elements of consciousness: one man is intellectual, another emotional, a third active or practical.

Age, Training, and Instruction.

So it is not strange that the feelings should present to the educator some very important problems. Perhaps the most important is the proper coördination, through habit, of the primary faculties. Conventionalized society compels men to set restraints upon the sensibility. The whole subject is comparatively new, having received far less attention than it deserves, but it lies beyond our path. The main facts

Problems Presented by Feeling

for us to consider are that the feelings of children are easily excited, that they have little control over them, and that, when strongly excited, they are largely incapable of intellectual activity, and wholly incapable of studying and learning lessons.

From the facts that have been set forth we shall now deduce some important rules of teaching.

1. A gentle glow or wave of pleasant feeling should play through the schoolroom, and over the mind of the individual pupil while he is engaged in study. Courage, hopefulness, appreciation, should mark the emotional climate rather than discouragement or despair. It is quite true that these factors, or any one of them, may be in excess of what is desirable. Appreciation may be carried to the point of teaching the pupil false ideas concerning himself and his relations to the world. He may be transported by the teacher into a fool's paradise. The objections to this folly are both intellectual and moral. Pupils should not be led to form exaggerated ideas of themselves and their attainments, but they should be led to believe that much can be done in the school, and that they can do it.

Pleasant Feeling to be Cultivated.

2. Pupils in school should be fortified as strongly as possible against strong excitement of the feelings, no matter whether the excitement is their own or that of another into which they enter through sympathy. The wheels of the intellect, so to speak, will not revolve freely in a flood of turbulent emotion. No gusts of anger, no cyclones of passion, no tempests of sympathetic impulse, should vex the pupil or disturb the atmosphere of the school. For one thing, such disturbances are followed by serious moral results —

Violent Feeling to be Discouraged.

they make character. But here the immediate point is that they kill or impair, for the time, the intellectual life of the pupil. No young pupil can study or recite when he is deeply grieved or thoroughly angry. This phase of the subject Dr. Carpenter has treated in an admirable passage.

Dr. Carpenter on "Willfulness."

"Those 'strong-minded' teachers who object to these modes of 'making things pleasant,' as an unworthy and undesirable 'weakness,' are ignorant that, in this stage of the child-mind, the will — that is, the power of *self*-control — is weak; and that the primary object of education is to encourage and strengthen, not to repress, that power. Great mistakes are often made by parents and teachers, who, being ignorant of this fundamental fact of child-nature, treat as *willfulness* what is in reality just the contrary of will-fullness; being the direct result of the *want* of volitional control over the automatic activity of the brain. To pnnish a child for the want of obedience which it has not the power to render, is to inflict an injury which may almost be said to be irreparable. For nothing tends so much to prevent the healthful development of the moral sense as the infliction of punishment which the child *feels to be unjust;* and nothing retards the acquirement of the power of directing the intellectual processes so much as the emotional disturbance which the feeling of injustice provokes. Hence the determination often expressed to 'break the will' of an obstinate child by punishment is almost certain to strengthen these reactionary influences. Many a child is put into 'durance vile' for not learning 'the little busy bee' who simply *cannot* give its small mind to the task, whilst disturbed by stern commands and threats of yet severer punishment for a disobedience it cannot help; when a suggestion kindly and skillfully adapted to its automatic nature, by directing the turbid current of thought and feeling into a smoother channel, and guiding the activity which it does not attempt to oppose, shall bring about the desired result, to the surprise alike of the baffled teacher, the passionate pupil, and the perplexed bystanders." [1]

[1] *Principles of Mental Physiology.* New York, D. Appleton & Co., 1886, pp. 134, 135.

3. The emotional adjustment of the young pupil to the teacher should receive attention. Whether the pupil or student likes the teacher or not is always an important question. Young men and women in college may get a great deal of good out of old Professor Crusty, whom they hate, even preferring him to young Professor Good-Nature, whom they like, because they recognize the ability of the former and subdue their personal feelings; but young children are wholly incapable of making any such discrimination. Their relation to their teacher is determined wholly by their feelings, and not at all by scientific interest. The result is that they get little or no good, and much harm, from a teacher whom they thoroughly dislike, no matter if the teacher be an admirable person or even a good teacher in another school. Even in colleges and universities this emotional factor plays no small part.

Emotional Adjustment of Teacher and Pupil.

Accordingly, the temper of a teacher and his power of adaptation to pupils are among the things to be considered in assigning him to a school, or even in his employment. This is particularly the case in lower grade schools. Then it is one of the first duties of the teacher, and of the primary teacher especially, to adjust himself to his scholars, winning their confidence, respect, and love. Once more, when a teacher, after a fair trial, has failed to effect such an adjustment between himself and the school, the time has come for the school authorities to consider whether he should not be transferred to another school, or, if circumstances require, be discontinued altogether. Such transference or discontinuance may involve some hardship to the teacher, but it is the right of the pupils. In another school or in another place he may do excel-

Failure to Make Such Adjustment.

lent work, but not in this school or place. No doubt a word of caution is needed. School administration and discipline should by no means be abandoned to the whims, notions, and caprices of school children; neither should the studies be determined with sole reference to their so-called interests. Still, their real feelings, like their real interests, must be respected within reasonable bounds. No man can estimate the harm that has been done to the minds and characters of children, and especially of sensitive children, through association with nurses, tutors, and teachers who were distasteful or repulsive to them. On that point, biography, and still more autobiography, tells its own story.

Effects of Hope and Fear.

Hope and fear sometimes lead to the same result. They may strengthen one man and weaken another. The man who is energetic by nature says, "The outlook is encouraging, we must make the most of it"; or, "It is discouraging, we must exert ourselves to the utmost." The feeble man says, "The prospect is hopeful, everything will come out right anyway;" or, "Nothing can be done, and it is useless to try." The effect of hope and fear upon men depends upon the native tone, or the character, of the man. Some men are never so strong as when in the presence of danger, never so weak as when in the presence of security. The one situation nerves them to do their utmost; the other lulls them to sleep. Others are strongest when animated by hope, weakest when depressed by fear. Such are some of the effects upon different minds of optimistic and pessimistic tones of thought and feeling.

It is easy to see how what has just been said applies to children. They are rarely strengthened by any form of fear, and young children never are. They require a

warmer emotional climate. They need encouragement and hopefulness. And yet this is one of the places where it is important for the teacher to remember Solon's maxim, "Nothing in excess."

PARALLEL READING. — *The Story of the Mind*, James Mark Baldwin. New York, D. Appleton & Co., 1898. *Outlines of Psychology*, Harold Höffding. London, The Macmillan Co., 1892. Chap. IV. ("Classification of the Psychological Elements"). *Primer of Psychology*, George Trumbull Ladd. New York, Charles Scribner's Sons, 1884. *Studies in Education*, B. A. Hinsdale. Chicago, Werner School Book Company, 1896. Chap. III. ("The Laws of Mental Congruence and Energy Applied to Some Pedagogical Problems").

CHAPTER XIX.

METHODS OF LEARNING.

NO word employed in educational literature or discussion, or at least no word relating to teaching, has been more abused than the word "method." This abuse is seen in the irrational emphasis that is placed upon it, and the absurdity of its applications. Teachers borrowed the word from philosophy and, having done so, proceeded to degrade it. They have not hesitated, for example, to apply it to the commonest expedients and devices, and even tricks, of the schoolroom. We have the "letter" method, the "word" method, and the "sentence" method of teaching reading; the "oral" method and the "written" method of teaching spelling; the "oral" method and the "book" method of teaching elementary science, and I know not how much more besides. In the literature of teaching, particularly the minor literature, the word is repeated *ad nauseam*, and, if possible, still more frequently in lectures and class instruction. And then the stress that the advocates of different methods place on their little devices! As though men were never taught anything, or could be taught anything, except according to their particular prescriptions! It is no wonder that many sensible teachers, weary of "methods," have

Abuse of the Word "Method."

turned their faces away from method, as they hope, forever.

But the subject cannot be gotten rid of in this easy fashion. Any man of sense will see this the moment he takes one real look into the heart of the matter. M. Compayré defines method in general as "the order that we voluntarily introduce into our thoughts, our acts, and our undertakings." "To act methodically," he says, "is the contrary of acting thoughtlessly, inconsiderately, without continuity, and without plan. Port Royal justly defined method as the 'art of rightly arranging a series of several thoughts.'" And again: "In a more precise and particular sense, method designates a whole body of rational processes, of rules, or means which are practiced and followed in the accomplishment of any undertaking." [1] This brief account of the matter will show sufficiently that method is indispensable, and that it relates to the matter of our thoughts and their expression rather than to the dexterities, physical or mental, of the daily life. Perhaps it is impossible, so strong is the power of habit, to rescue the word wholly from the hands of those who are degrading it, or to bring it back

Method Defined and Vindicated.

[1] *Lectures on Pedagogy, Theoretical and Practical.* Translated by W. H. Payne. Boston, D. C. Heath & Co., 1891, pp. 265, 266. A French writer, M. Marion, quoted by Compayré, thus states the three great advantages of the man who proceeds rationally in every kind of practical work over him who lives on expedients. "Starting with a fixed purpose, he runs less risk of losing sight of it and of missing his way. Having reflected on the means at his command, he has more chances of omitting none of them, and of always choosing the best. Finally, sure both of the end in view, and of the means of attaining it, it depends only on himself to reach it as soon as possible. 'A lame man on a straight road,' said Bacon, 'reaches his destination sooner than a courier who misses his way.'"

to its pristine meaning; but it is possible to do something in this direction. In this chapter we shall hold strictly to the original and proper meaning of the term.

Methods of Teaching and of Learning.

It is perfectly clear that methods of teaching depend upon methods of learning, or of acquiring knowledge, and that the teacher's function is to help the pupil to learn. Furthermore, the art of study must recognize also the methods of learning, or of acquirement, because study is only a means of learning. Pupils do not study simply for the sake of studying, but for the sake of gaining knowledge and discipline. Accordingly, it becomes necessary for us to give an account of the methods by which we learn or gain knowledge. This account will be as brief as is consistent with clearness.

Perception.

The first things that a child learns, or that he knows, are the sense-objects right about him in the world. These objects impress his senses, or they produce sensations in the appropriate organ—touch, sight, hearing, taste, or smell; and these sensations the mind changes into mental pictures called perceptions, or they are *ideated*, as the text-books say. It is not at all necessary for our purpose to give a minute account of the way in which all this is done, but one or two facts should be strongly grasped.

The child observes sense-objects, receives impressions, and these impressions or sensations are elaborated into perceptive ideas. These ideas are mental pictures of single, concrete, unrelated, things.

First-Hand Knowledge.

Thus the child learns to know his toe, his thumb, his hand; his mother or nurse; his rattle, his spoon, and many other things that go to make up his environment. Such are the humble beginnings of all our knowledge. This knowledge does not come through

teaching or words. The child learns at first without other help than is furnished when those who minister to him put sensible objects before him in the manner that he can best understand. His only lessons are object lessons. This knowledge is slow, but it is sure; it is first-hand, original knowledge. The child is not dependent upon another for it, but gets it through the active exercise of his own faculties. It originates in the contacts between his own mind and the surrounding world, and is real knowledge in the most vital sense of that term. This, no doubt, is a sufficient account of simple sense-perception. It will be seen that at first the child makes his own knowledge with little help.

Apperception.

The process of perception does not go very far before it is strongly reënforced by another process that is called apperception. This word is composed of *ad* meaning "to," and *percipere*, meaning "to see" or "perceive," and it expresses the well-known fact that new things are grasped with the help of old things, or new ideas are acquired by the way of old ideas. Thus, a child who has formed an idea of a familiar object, say a cat, is brought into contact with an unfamiliar object, say a dog. Immediately his faculties set to work to understand this new object, bringing it into relation with his idea of the old object, and never really leaving it until he has satisfied himself that the two are alike or unlike; or, in other words, that they belong, or do not belong, to the same class. If the same idea or mental picture, somewhat changed, will not fit both objects, he must begin anew and form a new and independent idea of the new object. Interpretation and classification are thus both involved in apperception. Accordingly, our ideas once formed are in no sense dead, mechanical things, heaped up in

the mind, but living powers that help us mightily in getting new ideas. Once an idea is brought into contact with new facts, things, or objects, it tends to promote the formation of ideas of these also.

Two or three further explanations should be offered.

A group of ideas through which the mind apperceives or interprets new experiences is called an apperceptive center or an apperceiving mass.

Value of Apperception.

In the process of apperception new facts or objects often become warped or distorted, that is, they are put in the same classes as old facts or objects, differences being for the time being overlooked. The child who sees flakes of snow for the first time may call them butterflies, if he has already formed that idea; or, under similar conditions, he may call a snake a tail, or stalks of grass trees. Better ideas come with fuller experience and the frequent correction of error. The more nearly the new facts or objects are like the ideas making up the apperceiving mass, the narrower is the margin for error. But in spite of the fact that apperception is the source of many temporary or even permanent errors, it still accelerates the acquisition of knowledge to a prodigious degree. Without this power of the mind to assimilate one thing with another, we could never know very many things; while what little we did know would consist wholly of single and isolated ideas. Of things in classes or by classes we could know nothing whatever.

General Ideas.

A still more important fact has been implied, but it remains to be fully stated. This is the fact that apperception brings into the mind, or causes to emerge in the mind, a new class of ideas. These are concepts, sometimes called general ideas, be-

cause they fit all the objects that make up the particular class. They are best understood when placed in contrast with percepts, which are ideas of simple, concrete things. There is some controversy about the origin of concepts. It answers our purposes, however, to know that they originate at this early stage of mind development, and that they are general in their nature. The meaning of it all is that the child who has reached this stage knows not only a cat, a spoon, a man, etc., but cat, spoon, man, as classes or species. Language marks the difference between the two classes of ideas by assigning to percepts proper nouns or their equivalents, but to concepts common nouns. Just as soon as a child uses intelligently the plural number — just as soon as he knows the difference between a man and men — he has passed from the stage of single ideas to the stage of general ideas; or from perceptive to conceptive knowledge.

Comprehensiveness of Perception.

All, or nearly all, the intellectual processes are involved by implication in the formation of clear percepts and concepts. Observation, or the examination of objects; analysis, or the separation of a whole into its parts; synthesis, or the combination of parts into a whole; memory, or the recalling of things once known; imagination, or the selection and combination of disconnected elements; comparison, or the discovery of likeness and unlikeness; judgment, or inference,—all are here. Some of them, however, are present in a very rudimentary form. It is not until a later stage of mental development that these elements fully declare themselves.

We shall now proceed to give a fuller examination of the processes of comparison and judgment, two very important steps in the attainment of knowledge.

In another chapter, much emphasis is laid upon the value of clear and precise ideas; it is there shown that sound judgment and correct thinking are strictly dependent upon such ideas. We must now look into the matter a little more closely.

Comparison and Judgment.

A single judgment is a comparison of two things or two ideas, or of one thing and one idea. When I lay a yardstick upon a piece of carpet to measure it, I compare things; when I apply to a certain path that I remember a measure that I carry in my mind, or measure the path mentally, I compare ideas; when I measure the path that is before me with a mental standard, I compare a thing and an idea. This tree is taller than that one; Elephants are sagacious beasts; This horse is an animal, are other examples. In respect to ideas, percept may be compared with percept, as "The river is a mile wide;" concept with concept, as "The dog is the companion of man;" percept with concept, as "This specimen is a star fish."

But all judgments are not affirmative judgments; some are negative. Every judgment contains two parts—the two things that are compared; while a judgment expressed in words is called a proposition, which also consists of two parts. One of these two parts, whether of the judgment or of the proposition, is called the subject, or that of which something is said; the other the predicate, or that which is said of the subject; and these two parts are bound or coupled together by a copula, which is commonly some form of the verb "to be." In thought, all propositions can be reduced to one of two forms: A is B, or A is not B. Properly speaking the judgment is the thought or soul that resides in the proposition, while the proposition is the body of this soul.

Affirmative and Negative Judgments.

Judgments are of two kinds, primary and secondary. They may also be called immediate and mediate, direct and indirect. In primary judgment the mind perceives and declares directly the agreement or disagreement of the two things compared. "This tree is green," "This cloth is not white," are such judgments. In indirect judgment the mind circuitously discovers the agreement or the disagreement of two objects by comparing each of them with a third object, as will now be explained.

Primary and Secondary Judgments.

Thinking proper is inferring, which means the derivation of a new judgment from old ones, or the carrying into a new judgment of what was contained in previous ones. Judgments reached by the way of other judgments are the secondary or mediate judgments mentioned above. The derivation of such judgments is the province of proper thinking. Furthermore, thinking, or inference, is of two kinds, inductive and deductive, which will now be explained. Moreover, while this is being done we shall see more clearly what is the real nature of thinking. Still it is quite impossible and unnecessary to go into the niceties of the subject.

Inferences: Inductive and Deductive.

The nature of the two methods of thinking, or the two kinds of inference, and their relations to each other, can be seen at once on examining a common syllogism, which is the perfect type of deduction. We will take the following for an example:

The Syllogism.

1. Iron pokers when heated to a certain degree become red hot;
2. This tool is an iron poker:
3. Therefore this tool when so heated will become red hot.

The first two propositions are called the premises, the third one the conclusion, of the argument. Now no man

who accepts these premises will think of denying the third proposition. This is not at all because he has examined, or proposes to examine this tool, when heated; the third proposition is a conclusion that follows or is inferred irresistibly from the other two. It is a secondary or thought-out judgment; that is, the tool is compared with red hot indirectly through the thing called iron. We may represent the process in symbols thus:

All B is A,
All C is B,
All C is A.

C and A are compared by means of B. Deduction, it will be seen, is an inference from the general to the particular. But the truth of the conclusion depends upon the truth of the premises; what they are worth the conclusion is worth; no more and no less. But what is the origin of these premises. How do we know that they are true? To be definite, how do we know that all iron pokers when heated to the prescribed degree become red hot? To answer this question we must consider the other method of thought; that is, induction.[1]

I have observed that all the pokers which I have seen heated to a certain degree have become red hot; **Induction.** hence I infer that whenever this one is so heated it will become red hot. Again, I have observed

[1] "The word 'inference,'" says Mr. Fowler, "is employed in no less than three different senses. It is sometimes used to express the conclusion in conjunction with the premise or premises from which it is derived, as when we speak of a syllogism or an induction as an inference; sometimes it is used to express the conclusion alone; sometimes the process by which the conclusion is derived from the premises, as when we speak of induction or deduction as inferences, or inferential processes."—*The Elements of Deductive Logic.* Oxford, The Clarendon Press, 1871, p. 65.

the same thing of numerous other pieces of iron; hence I infer that all pieces of iron so heated become red hot. Furthermore, people who have had experience with heated iron tell me the same thing. Their experience confirms my experience. Accordingly, I am so very positive that this proposition or reasoned judgment is true that I call it a general fact or a law of nature, unless, indeed, some new cause shall come into play that will prevent the poker becoming red hot.

But why am I at liberty to infer from the few instances in which I have seen this poker become red hot that it will always do so under the same circumstances? Or why may I conclude that what I have observed of several pieces of iron is true of the pieces which I have not observed? This question lies aside from our path, and it suffices to say that my right to make the inference depends upon the uniformity of nature; that is, the law that under the same circumstances the same cause produces the same effects. Moreover, every valid induction involves two steps or stages. One is the observation of particular objects or facts; the other the inference from these particular facts of a general truth or proposition, which may be variously called a definition, a rule, a principle, a general truth, or a law. Induction, then, is an inference from particulars to generals or universals, as deduction is an inference from generals or universals to particulars. In other words, induction leads to new general truths; deduction, through the combination of two propositions, develops a third which they contain between them. Induction leaves off where deduction begins, and the two together make up the one complete method of thought.

Two Steps in Induction.

But what about the second premise of the syllogism? This, too, happens to be a mediate proposition or judg-

ment, or one reached by a previous deduction. That is, I have learned (1) by induction that a body having such and such properties is iron; (2) by immediate observation that the body before me has these properties; and (3) conclude, or infer, accordingly, that it is iron.

Origin of the Second Premise.

Deductive inferences assume many different forms, some of them quite puzzling; but it is not at all necessary that we should consider these forms in order that we may understand the nature of deductive thinking. It may, however, be said that such arguments are not always, or indeed generally, stated at full length, but if they are legitimate arguments they may be so stated. Take the reply that Jesus made to his tempters when they demanded that he should show them a sign from heaven. "He answered and said unto them, When it is evening, ye say, It will be fair weather, for the sky is red. And in the morning, It will be foul weather to-day, for the sky is red and lowering." This brief passage can be readily expanded into two syllogisms by supplying the omitted major premises.

Abridgment of Deductive Arguments. Examples.

First syllogism:—

1. A red sky at evening betokens fair weather;
2. The sky is red this evening:
3. Therefore to-morrow will be a fair day.

Second syllogism:—

1. A red and lowering sky in the morning points to a foul day;
2. It is red and lowering this morning:
3. Therefore the day will be foul.

The major premise thus supplied in either case depends upon observation and inference. It is an induction. It sums up the experience of men under the existing conditions. The minor premise in either case is the result of

an immediate act of observation. It is an original proposition. The conclusions are valid within the limits of the premises. Often, however, the minor premise is also an induction.

It is accordingly clear that induction is a method of discovery; a method by which new general truths are established. That is, we take the facts that observation and experiment furnish, and inductively infer from them general conclusions. In this way the laws of nature, and many other laws, are established. Induction stores up the experience of men in general propositions, rules, maxims, principles, or laws where it can be made serviceable.

Induction a Method of Discovery.

It is quite as plain, on the other hand, that it is deduction which reduces these truths so stored up to practice. For illustration, we may refer to the physician in the sick room, the sanitary engineer, the merchant, the general in the field, the teacher in the schoolroom, the man of practice wherever you find him. The process by which the physician discovers a disease from which a patient is suffering, or makes a diagnosis of it as the professional saying is, is simply this: He has learned from his own experience and the experience of others that a certain group of symptoms means consumption, a second group typhoid fever, etc.; he discovers by an examination of his patient that one of these groups of symptoms is present in whole or part; and so he infers that the trouble is the disease that produces this group of symptoms. The process may be thus exhibited:

Deduction a Method of Application.

1. Such and such symptoms mean typhoid fever;
2. This patient has these symptoms:
3. Therefore this patient has typhoid fever.

Again, as induction is a method of discovery, so deduction is a method of practical application, and the two together make up the one complete method of thought.

But it is time to return to the child. As we have seen, his first knowledge is a knowledge of facts born of his own experience. He observes objects, tries various experiments upon them, forms percepts, brings apperception to reinforce perception, compares one thing with another, and finally reaches some very loose and indefinite generalizations. His perceptions as well as his generalizations are more or less incorrect and false, but he corrects or rectifies them by further observation, experiment, and inference. There is no mistaking the road on which he travels. The young child groping about in his dark world to find out the meaning of things proceeds inductively, just as does the trained man of science,—the chemist, the astronomer, or the biologist,—standing upon the confines of knowledge and seeking to make new discoveries. What the child is doing is to store up experience, that is, facts and ideas, by which he may interpret and understand the world. He is a learner who is doing original work. Those who have charge of him turn his mind to this object or to that by placing it before him and thus teach him indirectly; but to all intents and purposes he is a solitary worker, groping his way out into the world alone. He cannot take things at second-hand, or upon authority, but he must find them out for himself. Thus he makes his own knowledge without other assistance than is shown in the selection of his environment.

The Child an Original Discoverer.

But deduction does not lag far behind. It is in fact implicitly involved in apperception. In this process the ideas that the child has formed are deductively applied

in forming new ideas. That is, he perceives that a new object which is presented to him is more or less like the idea of an old object, and so he classifies the two together — the snowflake with the butterfly, the serpent with the tail. He assumes that things which are alike belong to the same class.

He learns the Deductive Method.

We have seen that the child's first tuition is wholly negative. He is taught by his tutors only through the selection and combination of the objects that are put in his way. We are dealing, of course, with the material world. Words to the young child are but sounds, not language; they convey no meaning. But, progressively, language becomes significant to him, which means that he now begins to enjoy direct tuition. He is still taught indirectly through his environment as before; but his tutors, as his mother and other members of the family, greatly facilitate his knowledge of things by explaining them to him as well as they are able. Still more, in due time, he is told about things that he has never seen or heard of, and that lie wholly beyond his sphere of observation. He is told things that he has had no part in finding out, and various means are employed to cause him to understand them. Pictures are shown him, or he is told that these unseen things are like such and such things that he has seen. In a sense, this is second-hand knowledge to the child; he takes it from another, and so on authority. It comes from a quarter that he has not explored and that he may be incapable of exploring. Moreover, what he is told will be helpful or harmful to him according as it fits into what he knows already. If it is sufficiently like what he knows, he will learn something useful; but, if not, the effort will be worse than thrown away. It is only through the facts and ideas he already

The Method of Second-hand Knowledge.

has that he can understand new facts and ideas, which brings us back to apperception. Thus a child who has learned directly what a dog is will get some idea of a wolf when he is told that a wolf is an animal like a dog. This is a critical time in the child's mental development — the time when his tutors begin to fit into his narrow experience some of their broader experience.

Now what is the method of thought that the child follows in acquiring second-hand knowledge? Obviously the same that he employed in acquiring first-hand knowledge. At first, words spoken within his hearing are but sound or noise, signifying nothing. But in time the child learns to listen to what he hears, and seeks to find out its meaning. He connects certain sounds with certain visual or audible objects; he correlates gestures and other forms of expression with words; he puts this and that together, slowly, patiently, and with many a blunder, until he begins to spell out the meaning of oral language. This is a part of the process by which

> " . . . The manikin feels his way
> Out from the shore of the great unknown,
> Blind, and wailing, and alone,
> Into the light of day."

The end is discovery, the method is induction. Still deduction begins as soon as a fair beginning has been made. The first ideas are used apperceptively, and through the door of apperception deduction enters. The child interprets what he hears, and interpretation, when once a beginning has been made, is mainly deductive. Concepts, rules, principles, as fast as they are acquired, are used to solve new problems. The completed process of apperception in the realm of secondary knowledge may be analyzed as follows:

1. Any animal that resembles a dog in such and such particulars is a wolf;
2. This description or picture presents these resemblances:
3. Therefore it is a description or a picture of a wolf.

The third proposition is inferred from the other two; the second is the result of an immediate observation. The concept dog is part of the child's first-hand knowledge, but the fact that wolf is the name of the animal bearing the resemblance to the dog is taken at second-hand, or on authority, as indeed is the fact that there is such an animal as a wolf.

No one can tell at what time this fitting of second-hand knowledge to first-hand knowledge begins. It differs in different children, and all we can say is that it begins just as soon as the mother or other tutor is able to impart to the child any bit of knowledge through language of any kind. But in every case it antedates the child's arrival in the schoolroom or even in the kindergarten. It is, as said above, a critical time in the child's mental development. In the larger sense, it is the beginning of his tuition. Let us see more fully what it really involves.

The Social World.

So far we have dealt mainly with the natural world. But there is a living social world as well, — a world of men and women, — and it is quite as important that the child shall understand this social world as that he shall understand the natural one. The child, in other words, is a social being, and he must become adjusted to the social world about him. The men and women who constitute this world are all thinking, feeling, and doing, and he can be efficient, helpful, and happy only as he learns to coöperate with them. The meaning of this, in the field of labor, is that he shall help them while they help him, or serve them while they serve him; and

so with respect to education, morals, politics, and religion. The individual is a part of the social whole, and his strength lies in his coöperation with that whole. It is no exaggeration to say that, to a degree, he must coöperate or perish; he has no choice in the premises; but the extent to which he does his own work and becomes efficient in the world depends upon the completeness of such coöperation. If he coöperates but feebly, he is, comparatively speaking, weak, helpless, useless, and miserable.

The Historic World.

Nor is this all; there is an historic human world as well as a living one. For thousands of years men have been accumulating knowledge in the form of facts, ideas, laws of nature and of society, and rules of conduct. This accumulation is the store of human experience that descends, increasing as it goes, from generation to generation. It represents the opportunities and strivings, the successes and failures, the thoughts and deeds of men, so far as these have been preserved. It is the garnered wealth of civilization, which, educationally considered, is one of the three great sources of culture-material that are accessible to men, the other two being the natural world and the living world of human society. The historic world and this living world may be called the one world of humanity under two aspects. Now the child at birth is just as ignorant of the historic world as he is of the natural and social worlds. Moreover, it is almost as important that he shall become acquainted with history as that he shall become acquainted with nature and society. This means that he shall early be introduced to the garnered store of human experience, and shall come to know it as thoroughly as possible; for, if he is to remain separated from it as he is at birth, which is indeed to a great degree impossible, he must begin life

as though he were the first human being in the world, having everything to learn for himself. To be in league with history, — to join hands with the men and women of the past, — is to enter into a still larger coöperation with the human world than is possible by merely being in league with the society of to-day. And, moreover, it is a more difficult adjustment to make.

How then shall suitable connections between the child and the social and historic worlds be effected? Here are two questions, and we shall deal with them in the order in which they occur.

How the Child Enters the Social World.

The social world presents to the child very different materials or facts from those that Nature presents. The methods of acquirement, however, are the same. The child begins with observing the simple, concrete human facts right about him — the acts of mother, nurse, or of any other persons who make up the little social world in which he lives — and from this small beginning he passes to the larger social world about him. Perception is followed by apperception, percepts by concepts, observation by comparison and judgment, and these again by thought and generalization. As in the world of nature, so here, the child begins alone, a solitary investigator, since none can render him any assistance save in the indirect and negative way of throwing facts before him. Soon, however, he learns to take social facts, like natural facts, at second-hand, or on authority. Thus, in the simple contacts of the nursery and the home the child's education in social adaptation, in politics and in morals begins. The steps are precisely the same as they are in the natural world, and are taken in the same order.

In a word, the child learns the laws of the social world

in the same way that he learns the laws of the natural world. And so it is with the rules, maxims, and proverbs that embody and perpetuate the practical or prudential wisdom that the race accumulates. In this way he comes to such generalizations as these: "The fool and his money are soon parted;" "Honesty is the best policy;" "Despotism tends to corrupt the people;" "Freedom tends to national strength and prosperity;" "Experience is a dear school, but fools will learn in no other;" "Barking dogs never bite." The familiar saying of Francis Bacon, "Reading maketh a full man, writing a correct man, and discourse a fluent man," contains three such generalizations. These rules and maxims may have many exceptions, but they flow from observation and experience and serve a very useful practical purpose. It is perfectly plain that the process by which these generalizations are reached is induction, using that term in a sense broad enough to include the collecting of data.

Observation and Induction.

But, while the laws and rules relating to the existing social world are reached and proved by induction, they are applied to particular cases, or reduced to practice, by means of deduction. A man learns by experience to associate such and such qualities or acts with dishonesty; he observes that Mr. A. has these qualities, or performs these acts, and therefore infers that he is dishonest. This is a pure syllogism. Every adult person performs scores of such acts of reasoning as this every day of his life.

Deduction in Social World.

While it is more difficult for the child to effect a union with the historic world than with the living, social world, the method is the same. In one sense he cannot himself observe the facts of history, because these occur once and

How the Child Enters the Historic World.

are not repeated. The battle of Philippi was fought once for all; the Congress of Vienna sat once for all, and neither can be reproduced. There can be no experiments in the history class. It is this that makes historic facts historic. But the child may observe, and does observe, his own acts and the acts of others, which differ in no essential feature from historic facts, and which are constantly passing into history. One of the great merits of Comenius, the educational reformer, was that he demonstrated how all the great departments of knowledge have their beginnings in the experiences of infant life. "The beginning of history," he said, "will be to remember what was done yesterday, what recently, what a year ago, what two or three years ago." Similarly, "the child's first instruction in chronology will be to know what is an hour, a day, a week, a month, a year; what is spring, summer, etc." [1] As respects the past, the child must take his facts at second-hand, upon authority. He will find them at first in the tales told by his seniors, but later in books and other historical records. His own observation gives him a store of apperceiving material. He interprets the oral reports that come to him of what has been by his own experience of what is, and he reads his book by the light of such experience, and of the knowledge that he receives by word of mouth. Thus, both oral tradition and written documents become the child's teacher, spreading before him the lessons of the past.

The processes of induction and deduction act upon historic facts just as they do upon other facts. From historic data the child learns to derive general proposi-

[1] *School of Infancy*, edited by W. S. Monroe. Boston, D. C. Heath & Co., 1896, p. 20.

tions, and then to apply these propositions to new cases, just as in dealing with the facts of direct personal experience. Induction and deduction, as before, make up the one complete method of thought.

Unity of Methods.

We have devoted some space to explaining how the child learns. His methods are precisely the methods that he will use in after life. Still more, these methods are essentially the same in respect to all subjects. It is important to emphasize these two facts, for many persons seem to associate induction and deduction with philosophers and men of science, never dreaming that the child or the ordinary man is capable of performing such daring mental feats. There are differences in respect to the facts used, or in respect to the greater or less perfect application of the method, but nothing more. For example, a writer commenting upon "the wonderful intuition" of the Indian of the great fur land of the North, which enables him to forego the advantage to be derived from a compass, and yet rarely to miss his way, says: "The trees he knows were all bent to the south, and the branches on that side were larger and stronger than on the north, as was also the moss." It is indeed by these signs, among others, that the ignorant savage chooses his way, but there is no "intuition" about it. By induction, based on repeated observations, he comes to the conclusions that the trees on the wind-swept plain, as a class, lean to the south, etc., and these generalizations, by pure process of deduction, enable him to adjust himself to all the points of the compass.

PARALLEL READING.—*Psychology Applied to Education*, Gabriel Compayré. Boston, D. C. Heath & Co., 1894. *Pedagogy, Theoretical and Practical*, Gabriel Compayré. Boston,

D. C. Heath & Co., 1888. *Apperception: A Monograph on Psychology and Pedagogy*, Dr. Karl Lange, edited by Charles De Garmo. Boston, D. C. Heath & Co., 1893. *Herbart and the Herbartians*, Charles DeGarmo. New York, Charles Scribner's Sons, 1895. Part II., Chap. VII. ("Apperception"). *Talks to Teachers on Psychology and to Students on Some of Life's Ideals*, William James. New York, Henry Holt & Co., 1899. Chap. XIV. ("Apperception"). *The Psychologic Foundations of Education*, W. T. Harris. New York, D. Appleton & Co., 1898.

CHAPTER XX.

METHODS OF TEACHING.

THE preceding chapter was devoted to an exposition of the methods of learning as brief as seemed consistent with clearness. We are now to consider the bearing of this exposition upon the art of study and the art of teaching. The answers to the questions implied are as direct and plain as they are important.

Study a Mode of Learning.

First, the art of study is but a mode of learning and conforms to the same general method. It is true that we have confined our definition of study to books, which lie in the field of secondary knowledge; but the methods by which the contents of books are appropriated by the mind have also been explained as not differing essentially from those employed in the acquisition of the knowledge of things. Moreover, we have kept real knowledge and the use of the senses continually in view, as giving support to the more refined processes of the book.

Teaching to Spring from Learning.

Secondly, teaching must conform in general to the same methods as learning. The teacher, to be successful, must take his method from the pupil. If the teacher's method of teaching is not the pupil's method of learning, the two will work at cross-purposes, and little progress will be made. From this main fact some important rules of teaching follow.

The first of these rules is that induction and deduction should be judiciously combined in teaching, from first to last. In one sense the teacher has no option in the premises, since induction and deduction are laws of the human mind that cannot be set aside. Still, the teacher may fail in combination, using one method where the other should be employed, or in emphasizing one at the expense of the other.

Induction and Deduction to be Combined.

The second rule is that the ratio of combination must fluctuate as the studies, the pupil's stage of progress, and the end that the teacher has in view fluctuate. This rule, which involves much difficulty in its application, demands, in consequence, a somewhat full elucidation.

The Ratio Between them Fluctuates.

In the early stages of school instruction the method of real knowledge, — observation, experiment, and induction — should be made prominent. As yet the child has not accumulated either a large stock of apperceiving material with which to interpret second-hand knowledge, or worked out a large number of laws, rules, maxims, for use in practical life. He is engaged in learning at first hand the two worlds about him, — nature and society. But he is also receiving knowledge at second-hand, which he assimilates by means of his own observation and thought. Furthermore, he is learning the great art of the school, the art of reading, and by means of this instrument, also, he augments his store of second-hand knowledge.

Induction comes First.

Now the teacher may strive to make his oral instruction mainly inductive, putting facts before general ideas, and the author of the text-book may have the same aim in view, but it is not possible to make either form of instruction as objective as lessons upon ob-

Deduction Follows.

jects or lessons drawn from nature may be made. The acts by which the mind primarily interprets language, oral or written, are essentially deductive, as was shown in the last chapter. The same may be said of pictures and other illustrations that appeal to the senses. It will, perhaps, be said that deduction also plays a part in the formation of new ideas of natural objects, but this is not the case to the same extent as when language is the medium of instruction. It is also to be observed that book instruction is more deductive and formal than oral instruction.

It is, therefore, clear that induction will be less prominent, deduction more prominent, in education the greater the dependence that is placed upon books and formal study. An education that is drawn mainly from books almost of necessity becomes bookish, abstract, and formal. To counteract this strong tendency recourse has been had to various agencies.

Correctives of Formalism in Teaching.

The most important of these agencies is real or objective teaching. Comenius, in modern times, pointed out that the way to free education from the bondage of the book was to go back to nature. He demanded:

Objective Teaching.

"Do we not dwell in the Garden of Eden as well as our predecessors? Why should not we use our eyes, and ears, and noses as well as they; and why need we other teachers than these in learning to know the works of nature? Why should we not, instead of these dead books, open to the children the living book of Nature? Why not open their understanding to the things themselves, so that from them, as from living springs, many streamlets may flow?" [1]

The stress that is now laid upon scientific teaching, and particularly laboratory methods, is a part of the great

[1] *The School of Infancy.* Boston., D. C. Heath & Co., 1896, pp. 36, 37.

educational movement that Comenius had so much to do with inaugurating.

A second means of overcoming the formalism of book instruction is oral teaching. While it is true that the process of interpretation is deductive, the oral method, notwithstanding its own defects, tends strongly to relieve the book of its formalism and to keep teaching from degenerating into mere word cramming.

Oral Teaching.

But nobody has ever proposed to throw aside books as instruments of teaching and discipline. Such a proposition would involve cutting the child off, in great degree, from the past. It would involve the renunciation of the major part of civilization, and would be a long step towards barbarism. The book must be retained — to this all agree. Educators really differ on only two points — the extent to which the book shall be used, and the manner in which it shall be used. Attempts to answer this second question, have led to a third device for overcoming the defects of book teaching, viz.: inductive text-books, or text-books written according to the inductive method. The characteristic feature of these books is not that deduction is thrown wholly aside, induction being made all in all, but it consists rather in the order in which the two methods are used, and the relative stress laid upon each.

Inductive Text-books.

Less than fifty years ago text-books on arithmetic were prepared on the deductive plan. The author began with definitions, proceeded to rules, and closed with examples and problems. Few illustrations of the rules were given, and there was little explanation of methods. Arithmetic was thus made as abstract and formal as it could be, concrete elements being found only in the examples and

Deductive Arithmetics and Grammars.

problems. The pupil ordinarily passed by the definitions and took up the rules. By dint of effort and such assistance as he received from the teacher or at home, he learned "to do the sums," as the phrase was, which fell under the rules. Study was almost wholly mechanical. When a group of miscellaneous examples was reached, the pupil did not so much seek to handle them according to their nature as he strove to find rules that would fit them. If the proper answers were obtained, the assumption was that the work was correct. Of course, there were exceptions to this plan of procedure.

The same description will apply to the books on grammar. The order of study was definitions, rules, and practice in parsing and analysis. But parsing and analysis are purely deductive processes. For example:

1. All names are nouns;
2. John is a name:
3. Therefore John is a noun.

This method was pursued until the last "property" of the word had been disposed of and the final "rule" of syntax been applied. If possible, the grammar was even more formal than the arithmetic. The geography and history, when there was any history, were less abstract, because they are not thought-studies but fact-studies. Still, they were taught wholly from books, as was also the little science that found its way into the schools.

Causes That Produce Such Text-Books.

It is easy to see how men came to write such books as these, and to teach in such a fashion. For one thing, the most convenient method of discourse or teaching is not the method of discovery. The discoverer goes on accumulating details until he feels justified in summing them up in a general state-

ment or proposition. He now wishes to impart to others what he has learned, and, instead of repeating the steps that he has taken, as a discoverer, slowly adding fact to fact, he begins with stating the general proposition that contains all that he has found out, and then, if he thinks it necessary, he gives one or two facts to illustrate his meaning. By this process generalizations are put before facts or instances.

This is precisely what the authors of the old arithmetics and grammars did, only they often failed to add explanatory examples, or to add them in sufficient number. It was the same way with teaching. The result was the formalism and barrenness that marked such schools as those described by Horace Mann and Francis Wayland on previous pages.

Inductive Arithmetics and Grammars.

The new inductive books and inductive teaching undertake to bring the method of instruction back to the method of discovery. The author of one of the new arithmetics begins with an operation, or what teachers sometimes call "work." He repeats the operation a second, and a third time; he gives similar examples that the pupil may repeat it for himself; and then, when the process has been well mastered, he sums up the whole in a rule or method, and gives some additional examples for the pupil to work out in order that the process may be well fixed in his mind. An arithmetical rule, it may be observed, is simply a history or account of what is done in performing a typical example falling under the rule. Such is also the method of the new grammar. Instead of beginning with definitions of parts of speech, properties, etc., and advancing to rules of etymology and syntax, the writer of the book begins rather with language itself, and from his investiga-

tion of sentences and words works out the rules and definitions. As before, the abstract elements follow the concrete.

Exaggeration of Induction.

It may seem difficult to exaggerate the importance of the new step in education which is involved in the readjustment of induction and deduction, and in the larger employment of oral teaching. It was really the first step in the path of the new education. Still, the importance of this step *has* been exaggerated. Authors and teachers have sometimes lost sight of the fact that deduction is an essential part of the one method of thought; that in teaching it is not always the best way to repeat all the steps taken in the discovery of knowledge, since doing so involves a great waste of time and labor; and that inductive teaching itself may also be made formal. As respects the waste of time and labor, it is the same thing as waste of opportunity and of knowledge.

Results of Old and New Methods.

We have seen that it is by means of deduction that the individual who is prepared for such a step enters into the great inheritance that his predecessors have prepared for him, or, in other words, joins hands with the historic world. It is necessary, of course, that he shall gather sufficient apperceiving material by his own personal efforts to enable him to effect a union with the past. But, beyond this, he need not go for the purposes of the practical life. To insist upon beginning at the beginning in everything; to cause the child to trudge along the long inductive road; to be satisfied with nothing short of his learning everything by his own individual effort, means that the child must be cut off from the past altogether and live wholly in the present. More than this, insistence upon such a course would cut the child off from his own contemporaries as well as his pred-

ecessors and leave him alone, to perish in the world. Fortunately, the thing is practically impossible. But at the same time it is not difficult to go to such a length on this road that serious loss of time and effort will be incurred with the necessary consequence of loss of knowledge. Hence, it is the part of wisdom to make use of the "short-cuts" rather than to keep to the inductive road. It may be added that knitting together the new and the old, adjusting the individual to the world, is essential to the very conception of history. To effect such an adjustment is one of the prime objects of education. Its attainment lies partly within and partly without the school. The methods by which this adjustment must be effected have no doubt been explained at sufficient length. We may dismiss the topic with a few sentences quoted from a writer who has investigated it with much ability:

Dr. Vincent on "Short-Cuts."

"Pedagogy might be defined as the art of adapting new generations to those conditions of life which are the most intensive and fruitful for the individual and the species. . . . From this point of view, the educational function may be described, though possibly not defined, as a purposeful social effort to effect 'short-cuts' in the mental development of the individual as well as to hasten the whole process so that he may, in the briefest time, and in a thoroughly natural way, attain the standpoint of the race . . . The 'short-cut' theory in its extreme form relies upon deduction. It would save the time consumed in reaching generalizations. These, formulated by the race, should be transferred at once to the individual in order that society may advance in knowledge. . . . In the earlier period chief emphasis may be laid on induction, but with the growth of self-activity and consciousness, deductive 'short-cuts' may be economically introduced." [1]

Besides its value for practical direction, what has now

[1] *The Social Mind and Education.* G. E. Vincent. New York, The Macmillan Co., 1897.

been said is an answer to the demand that the individual, in his education, shall throughout repeat the history of the race, and learn everything by experience. For a time, the child must absolutely conform to this order, but after a time he should not, and in fact cannot, save in a limited degree. In other words, he learns to take the deductive short-cuts in education; furthermore, to refuse them entails infinite waste and is a virtual denial that man is a social being. In the words of Professor L. F. Ward:

The Individual and the Race.

"Nothing is calculated more forcibly to impress upon us the conviction that the mass of mankind must get their knowledge through instruction and not through experience, nor yet through personal observation and research, than to note how such great minds as those of Copernicus, Kepler, Galileo, Bacon, and Newton groped about in darkness and doubt respecting the questions of planetary revolution, tides, gravitation, light, etc., with which every schoolboy is now familiar."[1]

It is therefore evident that the teacher, for the sake of both knowledge and discipline, should employ induction and deduction from the beginning of the child's training, but not in a constant ratio. The child should be left to find out some things for himself, but other things he should be told. He should find out some things for himself, because there is no other way for him to find them out, and because this is the way leading to the teachings of human experience. He should be taught other things, because he would not be able to find them out, or could find them out only by a wasteful expenditure of time and effort. But what things shall he find out; what things shall he be told? No

Both Induction and Deduction to be Employed.

[1] Quoted in Vincent's *The Social Mind and Education.* New York, The Macmillan Co., 1897, p. 102, Note.

formal answer can be made to these questions; each case must be decided on its own merits. However, two serious mistakes have been made in attempting an answer.

One of these is the mistake made by the old authors and teachers in making teaching too formal, too bookish, too deductive. The other mistake is of a directly opposite character. The child is kept "finding out" things that he already knows, or things that he had better be told. There is too much observation and induction. We have been told that a child should never be told anything that he can find out for himself. Even Pestalozzi said we should read nothing, discover everything. No man has ever brought up a child in accordance with these precepts; no man will ever do so, because it is impossible. These precepts are gross exaggerations of the important truths that the child should not be told, and should not read, too many things, but should be led to exercise his own powers of observation and thought. I do not need to measure the Michigan Central Railroad from Ann Arbor to Chicago to find the distance between these points, because others have already measured it much better than I can do, while the greater sense of "reality" that I should have in doing it myself would be no compensation for the time and money that it would cost me. But I do need to measure enough distances to learn the process called "measuring," and the value of different measures or standards. Such knowledge as this can come only by personal experience. Moreover, such experience saves the pupil from that "facile use of words without ideas" which has been called "the clatter of machinery in a factory in which raw materials are scanty and poor." It is only too easy to tell children too much, but it is not mending matters to refuse to tell them anything

Abuses of Induction.

that they can find out for themselves. Investigation is a great instrument of teaching, but it may be, and sometimes is, overdone. Teachers of physics in high schools, for example, are already recoiling from the extreme to which teaching by experiment was at one time carried, and are placing more stress upon the formal elements of a good text-book. They find that the experimental method tends to overvalue raw facts, and to undervalue those principles and laws which constitute the framework of the science. Sir J. G. Fitch tells the story of an English teacher who, to show the interest of his scholars in science, spoke of their fondness for the chemistry of the explosive substances. But interest in the explosive substances does not necessarily show an interest in chemistry. Back of phenomena, such as explosions, lie the ideas that give the science its character, and science can never be fully understood until these ideas have been considered under both their inductive and deductive relations. One merit of the Herbartian analysis of the teaching process is the fact that application, the last of the formal steps, is wholly deductive.

Perhaps some readers of this chapter who are teachers will ask for more definite directions as to the manner in which they shall take the "short-cuts" in their instruction. The demand is a fair one and easily met.

"Facts Before Principles" not a Universal Rule.

It is not necessary always to follow the rule: Put the facts before the principle, the operation before the method. The time comes in the pupil's progress when that order may be, and should be, reversed, with such recurrence to the former order as may be necessary to keep knowledge fully alive. In this way the pupil's time and strength will be saved. However, this change should

not be made until the pupil has acquired as much knowledge and mental capacity as will enable him to grasp a general statement and, at least with proper illustrations, to understand and even to apply it. In general, it is best to follow the inductive plan in teaching arithmetic and grammar in common schools. Geometry, too, may be approached on the concrete or inventional side; but geometry, like algebra, is properly a deductive science, and must be taught as such or much of its educational value will be sacrificed. Again, the best teachers of physics do not now lead their pupils to extract the general ideas that constitute the science from the experiments of the laboratory. They give them, progressively, these ideas in book or lecture, and then send them to the laboratory to test and establish them. They very properly assume that the pupils know enough of the physical qualities of things to enable them to make a beginning. At this stage of progress the teacher is careful to keep the doctrine fully abreast, and sometimes even a little ahead, of the experiments; but at an earlier time this would be bad teaching. It is folly, as one author has said, to set the learner "to rediscovering the laws of physics." He adds:

"Before the pupil is in any degree fit to investigate a subject experimentally, he must have a clearly defined idea of what he is doing, an outfit of principles and data to guide him, and a good degree of skill in conducting an investigation."

Closely connected with this topic is another one — the relation of the word and the idea. In the earliest stage of learning the order is, first the object, then the idea, then the word. This is a strictly necessary order; the child can proceed in no other way. But in course of

time the order of the series may be reversed; ideas may be given before objects, words may even come before ideas. Now some enthusiastic souls have gone so far on the objective road as to tell us that the early order should always be followed, that the word should never come before the idea, the language never before the thought. This dictum is an exaggeration of a very valuable idea, and is as impossible of application as is the dictum never to tell the child anything that he can find out for himself. At one stage of progress this rule is to be closely followed, and at no stage of progress is it to be forgotten; but there are times when the inverse order of the terms of the series—facts, ideas, words—should be followed. For one, I am sure that I knew the word "boomerang" before I knew the idea, and I am not sure that I have seen the thing even yet. What is more, I have never suffered any loss because I acquired first the word and then the idea, although under some circumstances I might have done so.

"First the Idea, then the Word," not a Universal Rule.

PARALLEL READING.—*The Elements of General Method based on the Principles of Herbart*, C. A. McMurray, Bloomington, Illinois, Public School Publishing Co., 1897. *The Herbartian Psychology Applied to Education*, John Adams. Boston, D. C. Heath & Co., 1897. *Teaching and Teachers*, H. Clay Trumbull. Philadelphia, John D. Wattles, 1884.

CHAPTER XXI.

FORMAL TEACHING OF THE ART OF STUDY.

IT was pointed out in an early chapter of this work that the phrase "art of study," like the term "art," stands for two things. First, it means skill or acquired aptitude in study. Secondly, it means this skill or acquired aptitude itself as a subject of study. In the first case, we have an activity that constitutes art in the primitive, original sense of the term; in the second case, we have the rules or the methods to which such activity conforms. The first may be called practical art, the second formal or reflective art. The art of study in the one sense is exemplified by pupils in school rooms; in the other sense it is treated in books and lectures as a subject of instruction or discourse. It is clear, therefore, that this art, like every other art, presents to our minds two stages — the stage of practice and the stage of study, which may, indeed, overlap.

Two Stages in the Art of Study.

So far we have been dealing with the first of these two stages. It is true enough that some rules have been laid down and that much has been said about method; but this has been done solely for the information and guidance of the teacher, not for the immediate use of the pupil. This instruction will be useful to the pupil in the second stage of progress,

Practical Stage so far Considered.

that is, when he begins to study his art. Such matter will not, however, help, but rather hinder, him in the first stage of progress. It cannot be too strongly asserted that the pupil must learn to study by actually studying, just as he must learn any other art by actually practicing it. It is the teacher's business to see that he does study. What is more, the teacher must see that the pupil studies in the right way, that is, according to right rules or sound method. What right method is has been told in great part on previous pages; but the teacher is not, at this stage, to attempt to teach the pupil method as method.

It will be seen that so far the pupil's method is implied in his work. He is, in fact, wholly unconscious that he has any method at all. He does what he is set to do, and does it as he is directed, but he has little sense, if any, of the reasons why he does it or does it in the manner directed. The teacher, it is assumed, conforms to the laws of the pupil's mind in all that he does. In what has now been said there is nothing peculiar to the art of study; it is the same with all the other arts of life. John Locke may be quoted as follows:

The Pupil Unconscious of his Method.

"But pray remember, children are not to be taught by rules which will be always slipping out of their memories. What you think necessary for them to do, settle in them by an indispensable practice as often as the occasion returns; and, if it be possible, make occasions. This will beget habits in them which, being once established, operate of themselves easily and naturally, without the assistance of the memory."[1]

It would be even worse if the rules did not slip out of the child's memory, for if retained they would only serve to distract him. So much at least is clear. But, more

[1] *Some Thoughts Concerning Education.* New York, The Macmillan Company, § 66.

than this, practice on the part of the pupil must continue to the very end of his course. Study of the art can never take the place of the study of any subject as a means of mastering the art.

The Teacher the Pupil's Leader.

In the beginning, as we have seen, the wise teacher simply directs, or, what is better, leads, the pupil to do his work in a prescribed manner. He assigns no reasons, makes no explanations, says nothing about rule and method. To do more than this would be folly. To talk to immature pupils about discipline, culture, mental habits, and good methods either falls flat or makes them self-conscious and priggish. The only thing for the teacher to do is to see that they do their work well, leaving these other considerations to a later time. If the teacher does this, the pupil will be working into the very constitution of his mind the art of study as practical ability or power.

Again, the art of study involves a general and a particular element, corresponding to the general and the special methodology of teaching. The first element consists of rules and precepts that are of general application; the second constitutes the rules and precepts that relate to particular subjects. Then there is a practical skill involved in handling a subject that can be acquired only by handling that particular subject. Save in a general sense, the student does not learn how to handle the facts of history by handling the facts of science. A student may know how to study mathematics and not know how to study history; or he may succeed with grammar and not with literature. Every subject has its own technique. Some remarks on the relative difficulties of mathematical and scientific method and historical and literary method have been made in another place.

But the time comes when it is necessary or advantageous for the pupil to enter upon the second stage of his art; that is, its formal or reflective stage. Hitherto the teacher has silently guided his work according to rule and method. Now he takes the pupil into his confidence, explaining to him in some measure the processes that he has been mastering by practice, and the rules that govern them. As a result, the pupil begins to consider his studies in relation to his own mind, and so to become somewhat self-conscious.

Formal Stage.

To be more explicit, the teacher has hitherto seen to it that the pupil does not become absorbed in his environment, that he is protected against distracting influences, and that he applies himself as closely as possible to his lessons. The teacher now causes him to understand that the things he has been doing are conditions of successful study, and so are essential to learning. They are now brought before him as rules to be observed. To take another example, the teacher has been in the habit of leading the pupil to definitions and rules by the way of examples, or he has employed the method of induction; but now he causes the pupil to understand the nature of what he has been doing, and the difference between induction and deduction, which reverses the process. He presents the rule that in attacking a new subject it is better to begin with facts than with definitions and rules. It is not indeed desirable for the teacher to use technical language, to talk about study as a practical art and as a reflective art; but he should not miss treating the things for which these names stand.

How Rules of Study Originate.

The pupil will in some measure anticipate the teacher. He will of himself attend to the simpler things of method. He will, that is to say, see that there are rules back of the

things that he does and that these rules have practical value. He discovers, for example, that he does not get on with his studies when he is over-interested in external objects, when he is disturbed by a noisy or idle companion, or when he allows his mind to go wool-gathering. These discoveries, as he becomes reflective, more or less influence his mind and affect his work. They fortify the indispensable practice in which the teacher strives to establish him. He becomes intelligent and rational in his practice, and takes more pleasure in it. Intellectually, he is coming to be a law unto himself. Nor is this all: the pupil may even take an interest in the rules that relate to his work, because he sees that they embody ideas. He discovers order and system, or rational method, in what the teacher requires him to do, and is pleased and encouraged in consequence. In fact, the quick-witted pupil, well trained in his studies, will make some progress in generalizing his own experience without the formal assistance of his teacher. In other words, his art of study will pass unconsciously into the second stage. At the same time, it is the business of the teacher, as already pointed out, to facilitate this passage.

The Pupil Anticipates the Teacher.

It will be asked, as a matter of course, at what age or stage of progress in his studies the pupil should enter upon the formal study of his art. The question does not admit of a positive answer. Mental growth is not sharply divided into periods; the very conception of growth excludes any such thing. The pupil does not become a reflective student at a definite time, as a man may enter the army, or take up the work of teaching at a definite time. But some approximation to an answer can be made.

The Passage from First to Second Stage.

First Formal Instruction.

During the first stage of progress in the art of study, and at a comparatively early time, too, the teacher will drop a hint here, and throw out a suggestion there, that the pupil will find practically helpful. These practical hints and suggestions constitute the formal art of study in its simplest elements. Naturally, they will become more numerous and comprehensive as time goes on. By the time that the pupil reaches the high school, or even before, he should have acquired many of the elementary ideas that enter into the method of study, and have learned to act upon them. This is especially true of the more mechanical and practical of these ideas. Study as a reflective art, the student cannot be expected to master until he becomes familiar with the main facts and principles of psychology and logic; but he may be, and should be, an excellent student before that time, practically well instructed in his art. Method has culture value as well as guidance value; but there is no good reason for teaching it in the schools save as it improves practice in the corresponding art. It would, indeed, be idle or something worse to attempt to teach pupils who have not studied psychology and logic Chapters XIX. and XX. of this work. The teacher must never forget that formal teaching of the methods of study is not the same thing as making the pupil proficient in the art of study.

Subject-Matter of The Formal Art.

We now reach the question, What is the subject-matter of the art of study that the pupil is to learn and the teacher to teach? At this stage of our work the answer should not be difficult. This subject-matter, to a great extent, is the subject-matter of this book: it is methods of study and learning, treated as a study or subject.

This book has been written with the teacher immediately in mind. It describes the way in which teachers should teach pupils in order to make them proficient in the art of study. But the art of teaching and the art of study are related in the same way that teaching and learning are. The teacher takes his methods from the pupil's mind. It follows, therefore, that much of the knowledge of method, which is useful to the teacher in teaching, should also be useful to the learner in learning, just as soon as he is able to understand and apply it. A manual for the teacher should also be, in a certain sense, a manual for the pupil who is able to use it. The matter in the present work that might be of use to pupils has not been put in the form best suited to their capacity, since this book has been prepared primarily for the use of teachers. Teachers, however, should know how to select what they can use or adapt for the pupil's benefit.

This Book Written With the Teacher in Mind.

The teacher and the pupil have much more in common than has yet appeared. The teacher who is not also a student has no business in the school room. It is a commonplace that the teacher should constantly seek to enlarge his own knowledge. This work should therefore have a double value for those for whom it is expressly written, —a value for them as teachers, and another, as students. Since many teachers have a feeble grasp of study as a reflective art, and are indifferent students, as was stated in a former chapter, they should lay to heart these lessons for their own sake, as well as for the sake of their pupils. Furthermore, some paragraphs may be added that teacher-students should find especially interesting and helpful.

What the Teacher and Pupil Have in Common.

The relative lack on the part of adults of volitional control of their attention, or their minds, is a fact very familiar to competent observers. There are intermittent minds, as there are intermittent fevers and intermittent springs. Many persons have never gained, in any proper measure, the power of self-regulation. They are, for the most part, controlled from without through their interests and feelings. Many others have gained this power in a degree, that is, in relation to certain kinds of activity. Voluntary activity, through repetition, has hardened down into routine and habit. These persons now run easily and swiftly, but automatically, in their ruts, while outside of their ruts they can hardly run at all. It cannot be said that they have any real self-mastery of their minds. There are still other persons who, at some time, have attained to good general discipline, but who, through failing to keep up their training, as an athlete would say, have lost it. Educated men answering to the last two descriptions are by no means unfrequent. Some of them, particularly those of the third class, are persons of much cultivation. Outside of their wonted rounds, however, they cannot set themselves to work, or, if they do, cannot work with efficiency. Such persons are almost as weak in the power of self-direction as children. They are good examples of arrested development: they have never won, or having won, have never held the heights of self-discipline. It may be said of persons of this description that they have permitted their minds to escape from them.

Intermittent Minds.

Adults who have little volitional control over their minds, either because they have never acquired it, or because they have lost it, may find it necessary to take severe measures with themselves. Here is a man, for example,

who, owing to his feeble power of attention, will never do a piece of work that he is perfectly capable of doing, unless there is some cogent motive behind him. What should he do? Obviously, he should study to put some such motive behind him. If he has, say, too much pride to fail if he once begins, then let him begin. Or, if he is too conscientious to break his promise, then let him promise. In these cases enough will is assumed to make the beginning; that made, pride or moral sense reënforces and steadies the will until the work is done. It is not uncommon for persons of a light, trifling habit and aimless life to become centered on some line of activity, and so become useful to society, simply by assuming some responsibility, — perhaps the care of a flower garden, the protection and education of a waif picked up on the street, or the promotion of a charity. It is a commonplace that motherhood often changes the whole current of a woman's life, if it does not make over her character. There are numerous ways in which men who are doing little or nothing can place themselves in front of moral goads that will keep them up to a certain standard of efficiency; or, to change the figure, numerous ways in which they can put themselves under bonds to do something and be somebody. If they can work under pressure, and not otherwise, then they should create the pressure. The following is an amusing example:

Methods of Volitional Control.

"There is an anecdote related of himself by Alfieri, in his very interesting autobiography, describing the way in which he compelled himself to keep at his work. Being very fond of horses and of riding, he often left his desk and writing to take an excursion. No matter what resolution he made, the temptation of a fine day was too strong to be resisted. So he directed his servant

Anecdote of Alfieri.

to tie him in his chair, and to fasten him by knots he could not himself loosen, and then go out of sight and hearing for a certain number of hours. Thus Alfieri was obliged to keep at his desk. He adds that to avoid the ridicule of his being found by chance visitors thus fastened, the servant covered him with a cloak before departing. Thus the higher nature conquered the lower." [1]

The Man who Asked Admittance to the Penitentiary.

There drifts to me, as I write, a strange but not improbable story that teaches a similar lesson. It is the story of a man who called on the warden of the Ohio Penitentiary at Columbus, and asked that he be locked up for six months and be treated like a common criminal. As he gave his name and place of residence, was well dressed, and seemed to have plenty of money, had not been drinking, and did not appear to be insane, the warden was astonished and demanded an explanation of his strange conduct. "I have had a good time all my life," said he, "and have never tried to do anything for myself except enjoy myself. Now I have come to such a pass that I cannot settle down to work or steady employment of any kind. I am a nuisance to myself and to my friends. I thought this matter all over and made up my mind to apply to you. If you will take me in and keep me for the space of six months, I will sign any papers you say. I want to be treated just like a criminal and will work, eat, and sleep with the common herd. I believe that in this way I can get the discipline of which I am so sorely in need." The warden refused his request, as a matter of course, saying as he did so, that the State had made no provision for men like him. Whereupon the man turned away with

[1] *Self-Culture: Physical, Intellectual, Moral and Spiritual*, James Freeman Clarke. New York, Houghton, Mifflin & Co., p. 374.

the declaration that he would come to the prison before long under conditions that would make it impossible for the officer to deny him the discipline that he needed. The story may not be a genuine one, or the stranger may have been practicing upon the officer; but there is no question that a discipline such as they might receive in a well-managed penitentiary would be very useful to numbers of persons who are not criminals. Possibly we need institutions for the confinement and discipline of such men as have no real self-control or power of self-regulation.

The Maintenance of Mental Discipline.

The regimen by which mental discipline is maintained is very like the regimen by which it is first acquired. This is a regimen of application, of attention, of regulated activity. Some persons make the mistake of supposing that, mental discipline once gained, they can safely lapse into routine, inertia, or carelessness. This is by no means so if they wish to keep up their training. The mistake explains, in many cases, the deterioration in discipline and culture that marks the passage of the student from college or university to real life. The pressure of the school removed, he falls into laxity and feebleness. One or two habits of mind may properly be mentioned that, when carried too far, subvert the basis of mental discipline, destroy attention, and leave the mind the sport of environment.

Effects of Miscellaneous Interests and Activities.

One is the habit of cultivating directly or indirectly a great number of miscellaneous interests and activities governed by no real controlling purpose. A little of this, a little of that, and a little of the other may constitute a very palatable mental diet, but it will not keep up a high degree of mental vigor or tone. The daily newspaper fills an important place in current life; but it will not nourish

and sustain a disciplined mind. Much the same may be said of the magazine or other literary journal. Such literature has its value; some acquaintance with it seems indispensable to the most cultivated persons; but something more and something very different is necessary if mental discipline is to be maintained. In the very abundance of such material, and the ease with which it can be used, lurks one of the intellectual dangers of the time. Much the same may be said of the reading of miscellaneous books without any settled plan or purpose. It leads to vagrant mental habits, to intellectual Bohemianism. There is probably no kind of literature that is more harmful to the intellect, if read indiscriminately, than sensational novels. They excite the emotions, keep the mind feverish and disturbed, and destroy the intellectual fiber.

The main point is that the easy-going, desultory pursuit of miscellaneous interests will neither develop power of attention, or mental discipline, in the first place, nor maintain it when it has once been developed. Many interests must, for the time at least, be dismissed; the mind must be focused on chosen subjects, and this regimen must be maintained.

The Teacher to Control his own Mind.

The teacher, then, should look after his own will, as well as the wills of his pupils. His mind needs to be girded, his attention regulated, as well as theirs. This is essential to the highest success in teaching, especially when the lessons appeal to thought rather than to perception. A scatter-brained teacher will not focus the minds of pupils. Hence the value to the teacher of the admonitions: "Do not let your mind escape from you; keep it in hand; and, if it has already escaped, pursue it, capture it, and bring it back again."

It is not improbable that some readers will desire something more definite and concrete concerning our subject than has so far been presented. This desire can best be met by a slight account of the literature that, taken together, comprises, in the formal sense, an art of study.

Dr. Bain on the Literature of our Art.

In his essay on "The Art of Study" Dr. Bain mentions several of the writers who have contributed to this literature. He quotes the celebrated remark of Hobbes, that if he had read as much as other men he would still have remained as ignorant as they. This was Hobbes' way of emphasizing the value of personal thought upon subjects of study. Bain also quotes these sentences from John Locke:

John Locke Quoted.

"Those who have read of everything, are thought to understand everything too; but it is not always so. Reading furnishes the mind only with materials of knowledge; it is thinking makes what we read ours. We are of the ruminating kind, and it is not enough to cram ourselves with a great load of collections; unless we chew them over again, they will not give us strength and nourishment. . . . Books and reading are looked upon to be the great helps of the understanding, and instruments of knowledge, as it must be allowed that they are; and yet I beg leave to question whether these do not prove an hindrance to many, and keep several bookish men from attaining to solid and true knowledge. . . . To do this (avoid being imposed upon by fallacies) the surest and most effective remedy is to fix in the mind the clear and distinct idea of the question stripped of words; and so likewise, in the train of argumentation, to take up the author's ideas, neglecting his words, observing how they connect or separate those in the question."[1]

Locke's *Thoughts Concerning Education* is also, in some measure, a contribution to our art.

[1] *The Conduct of the Understanding.* New York, The Macmillan Co., 1, §§ 20, 24, 42.

Dr. Bain mentions Dr. Isaac Watts' book, *The Improvement of the Mind*, which was well known to our ancestors a generation or two back, and from which many of them derived much benefit. Among the numerous chapters the one entitled "Books and Reading" was perhaps of greatest practical value, but mention may also be made of those entitled "Study or Meditation, "Fixing the Attention," and "Improvement of the Memory."

Dr. Watts' "Improvement of the Mind."

Another book belonging to the same class, but a later one, was Dr. John Todd's *Student's Manual*, which obtained an enormous circulation both in this country and in England. Dr. Bain disparages it; and while it is full of homilies and other antiquated matter, still, a large part of the little treatise may yet be read by students with advantage. Often the precepts and homilies of the author are set off by appropriate examples, incidents, and anecdotes. In the chapter on study, Dr. Todd presents these phases of the subject: "The number of hours of daily study"; "Have regard to the positions of the body while engaged in study"; "Let there be no conversation in the hours of study"; "Be thorough in every study"; "Expect to become familiar with hard study"; "Remember that the great secret of being successful and accurate as a student, next to perseverance, is the constant habit of reviewing"; "Be faithful in fulfilling your appointed exercises"; "Learn to rest the mind by variety in your studies, rather than by entire cessation from study." No doubt these lessons are extremely commonplace to practiced scholars; but they are new to every new generation of pupils and must be learned afresh by them. This is one of the cases where the individual does recapitulate, and must recapitulate, the experience of the race.

Todd's "Student's Manual."

Particular attention should be given to Dr. Bain's own essay, which is the very best one that we have on the specific subject, "The Art of Study." Some paragraphs have been quoted on previous pages illustrating his practical method, and furnishing matter valuable in itself.

Dr. Bain's Essay.

It will be seen that we have entered the domain of self-culture, of which there is a large and constantly growing literature. Reference may be made to the books and articles coming from the press which deal with such topics as "The Use of Books," "The Selection of Books," "The Hundred Best Books," "Reading and Self-cultivation," and to the multitude of dictionaries, cyclopedias "literatures," indexes, and bibliographies that so greatly lighten the labor and multiply the resources of the scholar. It is much to be desired that teachers, and older pupils too, should become acquainted with some of the books that deal with self-culture in its broadest phases. There is Professor John Stuart Blackie's *Self-Culture: Intellectual, Physical and Moral*, and Rev. James Freeman Clarke's *Self-Culture: Physical, Intellectual, Moral and Spiritual.* The last comprises a series of twenty-one lectures, covering the whole field of self-cultivation. The author deals with the imagination, the conscience, the temper, the will, hope, reverence, and several other topics of the most practical character. Favorable mention may also be made of *How to Do It*, by Edward Everett Hale, *Self-Cultivation in English*, by G. H. Palmer, *The Choice of Books and Other Literary Pieces*, by Frederic Harrison, and *Books That Have Helped Me*, by various writers.

Literature of Self-Culture.

Then there is the class of books represented by the two small volumes entitled *Libraries and Readers*, by William

E. Foster, and *Libraries and Schools*, by Samuel S. Green. Both books contain much excellent matter relating to method.

I may mention, too, Mr. Harry Lyman Koopman's little volume, *The Mastery of Books*. This book consists of several helpful essays or chapters, including a classified list of books, that is the more useful because it is not overgrown. Chapter XI. consists mainly of a judicious list of books that deal with the subject of reading.

Koopman's "Mastery of Books."

Much of the best literature relating to self-cultivation is found in essays and periodical articles. These may be readily found, if the books and periodicals are at hand, by the use of Poole's Index and other similar works. Good articles on phases of the subject frequently appear in the numerous magazines and other similar publications, and the good teacher should be on the lookout for them.

Periodicals.

The mention of dictionaries, cyclopedias, and indexes suggests the obvious remark that, when pupils become old enough to use such helps, teachers should teach them how to use them. This is a part of the art of study which is much neglected. An occasional lesson in the practical use of an unabridged dictionary could be given with advantage to pupils who are learning to use that important work.

Lessons in the Use of the Dictionary.

However, the wise instructor who essays to teach the use of this work will not be content to have his students simply learn definitions. He will show them progressively how the dictionary itself was made, and for what it stands. He will point out the relation existing between the dictionary and language and literature. He will not permit his pupils to think that language or liter-

ature was made from the dictionary, but he will show them that the dictionary is merely an embodiment of the language. In other words, he will bring the pupils to see that good usage is the law of language, and that dictionaries and grammars only reflect this law. He will show them that such books, if sound and useful, merely embody the inductive studies of language and literature that scholars have made. In particular, he will be sure to lead his pupils to examine the examples collected by the author illustrative of definitions. These examples, rather than the greater number of words and definitions, constitute the best feature of an unabridged dictionary in comparison with the smaller dictionaries. They give a distinct flavor of induction to the study of definitions, and so tend to prevent that dependence upon formalism and authority which still kills so many schools. The small school dictionaries are probably useful, but their use is attended with serious dangers.

Hints to Teachers.

It has long been common for authors to insert in textbooks "Directions to Teachers," "Hints to Teachers," and the like. It did not seem to occur to them until lately that the scholars themselves stand in need of such assistance even more than the teachers. But the authors of such works are gradually learning the lesson. It is now not uncommon for them to insert matter relating to the art of study, as well as matter relating to the art of teaching.

Professorship of Books and Reading.

Carlyle once suggested a "professorship of things in general." He had in mind, I suppose, the thousand and one things more or less valuable that, in all our schemes of teaching, fall between chairs and so are never taught at all. Mr. F. B. Perkins and Mr. William Mathews — one a distin-

guished librarian, the other a well-known man of letters — once urged a more practical proposition, namely, the establishment of chairs of books and reading. The professors who hold these chairs, these gentlemen said, should teach a method and not a subject.[1] Perhaps it would be better to say that they should teach the method of using books and reading as a subject; for they could not, if they did their duty, confine themselves to the practical side of the work, that is, mere reading, helpful as that would be.

Objects of the Professorship.

If I understand them aright, Mr. Perkins and Mr. Mathews mean by the professorship of books and reading, something in the nature of a professorship of studies. Now, why not have in colleges and universities such a professorship—a chair whose occupant shall teach the Art of Study? Why leave this incomparable art, which really embraces all the other arts and studies of the school, mainly to be picked up by pupils, as it is at present? Some may say that the proposition is impracticable and some that it is unnecessary. Those who give the second answer may concede the

[1] Mr. Perkins and Mr. Mathews answer the question, "What shall the new chair teach?" as follows: "Not the history of literature, nor any one literature, nor any one department of literature, nor the grammar of any language, nor any one language, nor language itself, nor any form of its use, nor even any particular form of thought. It is something higher than any of these; it is not any one subject, any one field of investigation, but it is a method for investigating any subject in the printed records of human thought. It might be compared with the calculus in applied mathematics; it is a means of following up swiftly and thoroughly the best researches in any direction and of then pushing them further; it seeks to give a last and highest training for enlarging any desired department of recorded human knowledge. It is the science and art of reading for a purpose; it is a calculus of applied literature."—*Public Libraries in the United States of America.* Washington, Bureau of Education, 1876, p. 231.

value of such instruction, but hold that teachers of all grades should themselves give this instruction in their schools. And this is the exact truth. Teachers should teach their pupils and students how to study, but to a great extent they fail to do so.

Now, why do they neglect this art? Partly, no doubt, because they do not appreciate its importance, and partly because they do not know how to perform the duty. Moreover, their lack of appreciation and lack of ability are closely bound up together. Hence, the beginning of practical reform must be the better preparation of teachers in the art of study — not their better preparation in general, or in the studies that they teach. And this at once brings into view the professor who is to teach teachers this subject.

Failure of Teachers in Respect to the Art.

The question will surely be asked, Is it not the duty of the professor of pedagogy to do this work? Undoubtedly it is his duty, or a part of his duty, and a part that at present he is not performing very well. Unfortunately, he does not always see clearly that there are two points of view from which pedagogical instruction may be regarded, viz., the learner's point of view and the teacher's point of view. It is true enough that the fields which are before those who hold these two points of view are very much the same. The teacher is to teach what the pupil is to learn, and *vice versa*. Still, they are not practically the same thing, for learning and teaching, closely connected as they are, are not the same activity. Again, the art of study and the art of teaching, while closely connected, are still two different arts.

Duty of the Professor of Pedagogy.

Pedagogical instruction, as everybody knows, is com-

monly given from the teacher's point of view. This is the outlook of writers and lecturers on the subject. To a certain extent this is perfectly right and proper, since instruction that is to help teachers or other intelligent workers must bring their own distinct and separate art clearly before them. But the difficulty is this — the teacher's outlook is too exclusive. The reader of the book or the hearer of the lectures on teaching is not made to see, from the pupil's point of observation, the ground that he and the pupil are to occupy in common, and the result is that he does not see as he should the pupil's peculiar difficulties and needs.

Books and Teachers.

We must return to the relations of learning and teaching. Learning, we have seen, is the primary activity, and, as such, controls the teaching processes. The teacher's whole business as an instructor is to promote learning, and he must go first to the pupil's mind for his theory and art of teaching. It may seem strange, therefore, that the teacher's point of view is so thoroughly dominant in the literature of the profession. There are in the pupil's peculiar line of activity no words corresponding to the words "pedagogy" and "pedagogical" in the teacher's line. The pupil has no science of learning, no art of study. It will probably be said that the pupil has no need of such a science or art; that his business is to learn and not to occupy himself with theories and methods of learning, and this, in the main, is perfectly true. It will be said, too, that the whole field of learning is included in psychology, and this statement contains much truth. Again, it will be said that the science of psychology is too difficult for the pupil, and that, even if he could learn it, the knowledge which he would acquire would render him little if any assistance

Relations of Learning and Teaching.

in his work as a learner. This is equally true with the other propositions.

But these concessions do not cover the whole ground. The theory and the art of teaching are based directly upon psychology. The teacher's most familiar rules and methods, if good, run back to the facts of the human mind. Indeed, teaching is sometimes expressly called applied psychology. But the rules and methods of learning are applied psychology in a still closer sense. Learning, let it be said again, is the primary fact to be considered. Then why do not writers on education, following this line of treatment, give us a literature of learning, including study, as they have already given us a literature of teaching? If it is said that psychology is a literature of learning, and that teaching implies learning, my reply is that implication is not enough. We need to have these arts recognized in their own right, and this will not be done until teachers and writers on education come to look upon the operation of acquiring knowledge, or the development of the mind (whichever you see fit to call it), more from the pupil's and less from the teacher's point of view. How far the art of study could be formally taught to the pupil with advantage is a question that has already been considered; but I must insist that, if teachers generally could be brought around to the present point of view, it would be a decided advantage to their schools. They would see that their principal function as instructors is not so much to furnish their pupils with positive knowledge, as it is to show them where knowledge is, how it is to be gained, and to inspire them with a love of it. It is with the hope of accomplishing something useful in this direction that these pages have been written.

Pupil's Point of View to be Considered.

PARALLEL READING. — *Thoughts Concerning Education*, John Locke. New York, The Macmillan Co. *The Conduct of the Understanding*, John Locke. New York, The Macmillan Co. *On Self-Culture: Intellectual, Physical and Moral*, John Stuart Blackie. New York, Charles Scribner's Sons, 1875. (A *vade mecum* for young men and students). *Self-Culture: Physical, Intellectual, Moral, and Spiritual*, James Freeman Clarke. New York, Houghton, Mifflin & Co. *Libraries and Readers*, William E. Foster. New York, Publishers' Weekly. *Libraries and Schools*, Samuel S. Green. New York, Publishers' Weekly. *The Mastery of Books*, Harry Lyman Koopman. New York, American Book Company, 1896. *How to Do It*, Edward Everett Hale. New York, Houghton, Mifflin & Co. *Self-Cultivation in English*, G. H. Palmer. New York, Thomas Y. Crowell & Co., 1897. *The Choice of Books and Other Literary Pieces*, Frederic Harrison. New York, The Macmillan Co. *Books That Have Helped Me*, Edward Everett Hale and Others. New York, D. Appleton & Co., 1888. *Public Libraries in the United States of America.* Washington, Bureau of Education, 1876. Chap. IX. ("On Professorships of Books and Reading," by F. B. Perkins and William Mathews).

CHAPTER XXII.

TEACHING AS A MODE OF LEARNING.

IT is not proposed in this chapter to enlarge upon the general opportunities for mental cultivation that the teacher enjoys, which are an outgrowth of his vocation, but only to emphasize the natural reflex effect of this vocation upon his own knowledge or mental discipline, or to hold up to view teaching as a mode of learning.

One Cannot Teach What One Does not Know.

It is, first of all, an old saying that one cannot teach what one does not know. There is, indeed, high authority on the other side. Pestalozzi, for example, held that perfection of method would make it possible to dispense with intelligence in the teacher, at least in elementary instruction. Method, he held, owes its results to the nature of its own processes, and not to the skill of him who employs it. He did not hesitate to affirm that a schoolbook has no value except in so far as it can be employed by a teacher without instruction, as well as by one who is well instructed. A greater than Pestalozzi, Comenius himself, while not going quite so far as his enthusiastic disciple, still committed the same mistake, even giving one of his treatises the alternative title, "A Didactic Machine, Mechanically Contrived with a View to No Longer Stick-

ing Fast in the Work of Teaching and Learning, but of Advancing in Them." "He regards his method," says Professor Laurie, "as so absolute in its character that it may be likened to a machine — a clock, or a ship, or a mill. Set it going, and keep it going, and you will find the result certain." [1] Many attempts have been made by distinguished men to mechanize instruction, especially elementary instruction, but they have failed, one and all, as they were doomed to fail from the nature of the case. Dr. Andrew Bell said that if you would give him twenty-four pupils to-day, he would give you back twenty-four teachers to-morrow, but his confidence did not prevent monitorial instruction from becoming a dismal failure.

Mistakes of Pestalozzi, Comenius and Dr. Bell.

Learning is the free action of the spirit upon objects of knowledge, and so cannot be mechanized, while teaching is, perhaps, the most strictly spiritual act of a social character that a man is capable of performing. The attempt to mechanize instruction is part of the monstrous error that free minds can be coerced; it has really the same root as religious persecution. The mind must be taught as the Author of Mind must be worshiped, in spirit and in truth. Method, indeed, holds an important place in education, as has been remarked more than once in these pages, but its place always and everywhere is in strict subordination to the teacher. "Give me a log hut with only a simple bench, Mark Hopkins on one end and I on the other," said Garfield, "and you may have all the buildings, apparatus, and libraries without him." And yet

Instruction Cannot be Mechanized.

[1] *John Amos Comenius:* His Life and Educational Works, S. S. Laurie. Boston, New England Publishing Co., pp. 54, 55.

Garfield understood perfectly the use of books, apparatus, and buildings. The learner may learn more than the teacher knows, but not from the teacher. So far, in fact, is the teacher from being able to teach what he does not know, that he cannot even teach all that he does know. His knowledge is greater than his power of expression in language. Something is always lost in the act of communication, just as an engine uses up much of its own power in friction. In cases where confiding souls suppose they know each other perfectly, no small part of their knowledge comes about in ways that they cannot explain — they simply "understand each other."

Testimony to Value of Learning by Teaching.

In the next place, the fact has long been recognized that teaching is a most effective means of learning. Sir William Hamilton once collected many striking testimonies of distinguished men bearing on this point. The following are some of the anonymous ones:

"Knowledge stored away decays; shared with others it increases."

"If you seek to learn, teach; thus, you shall be taught yourself, for by such pursuit you will profit both yourself and your companion."

"To seek out many things, to retain the things sought out, to teach the things retained, — these three things cause the master to surpass the pupil."

"Learn and teach others, thus you shall be safely taught yourself; and you shall be more certain of your art than are the ordinary."

"He who teaches learns; he who learns thoroughly his studies teaches. That you may go forth learned, I counsel you learn, teach."

"We learn while we teach."

He gives additional testimonies, assigning them to their authors.

Plato : "To teach is the way in which we learn most and best."

Seneca : "Men learn while they teach."

Clement of Alexandria : "The teacher adds to his learning and is frequently a fellow-disciple with those whom he instructs."

Bishop Sanderson, who appears to have borrowed the quotation from one of the Jewish Rabbis: "I have learned much from my master, more from my equals, but most of all from my disciples."

The Practice of the Mediaeval Universities.

It is well known to all students of educational history that the mediaeval universities made extensive use of teaching as a learning process, setting their students to imparting their knowledge that they might increase it. The first teaching at these universities does not appear to have been so much professional teaching as a system of mutual instruction. A student who had found repute among his fellows gathered a little body of pupils round him, and thus supported himself for a few years until something better offered.[1] University degrees were first instituted for a practical purpose, being the first mode of certificating teachers used in the modern world. The doctor's and master's degrees were one and the same thing, as the doctor, the master, and the professor were one and the same person looked at from different points of view. As a doctor this person was learned or instructed, as a master he taught, as a professor he "professed" or held himself open to teach.

I shall venture to summarize an instructive passage from Sir William Hamilton, which bears upon our subject.

The older universities regarded the exercise of teaching as a necessary condition of a perfect knowledge; in recent times, the universities

[1] *On the Action of Examinations Considered as a Means of Selection*, Henry Latham. London, George Bell & Sons, p. 92.

have with equal unanimity neglected this exercise. Yet there can be no doubt of the superior wisdom of the more ancient practice. Teaching, like the quality of mercy, is twice blest, blessing him that gives and him that takes. No one can rightly teach who is not fully cognizant of the matter to be taught; but, on the other hand, the preparation for, and the very process of, instruction reacts most beneficially on the knowledge of the instructor, if the instructor be intellectually and morally what he ought to be. If so, teaching constrains him to a clear and distinct consciousness of his subject in all its bearings; it brings to his observation any want or obscurity lurking in his comprehension of it as a whole; and urges him to master any difficulty the solution of which he may have previously adjourned. The necessity of answering the interrogations of others compels him, in fact, to interrogate and to answer himself. In short, what he has learned synthetically, he must now study analytically; but a combination of analysis and synthesis is the condition of a perfect knowledge. Still, it must not be supposed that the older universities, while enjoining the practice of instruction as a means of learning, abandoned the higher academical teaching to student-doctors. On this point, their practice was to require the student to learn from the learned, while he himself taught the unlearned. With many academical instructors, teaching is at best a mechanical effort, a mere pouring out of what has been previously poured in; professing to teach, teaching is for them no self-improving process, and as to their pupils, they "teach the young parrots to whistle the same as they were taught to whistle when they learned to become parrots." [1]

Passage From Hamilton Summarized.

It is easy to see that student-teachers could not in the long run compete with professional teachers, but would have to yield to them in the end. I am in no sense advocating the introduction of such teachers into schools, or defending their retention where they are found. My thesis is that teaching is an admirable mode of learning for those prepared to

Student-Teachers not Advocated.

[1] *Discussions on Philosophy and Literature, Education and University Reform.* Edinburgh, William Blackwood & Sons, 1866, p. 774.

profit by it. The student that I have in mind is not an immature pupil in school practicing upon his fellow-pupils, but a properly equipped teacher, regularly engaged in the work of instruction. Such teacher, as we have seen, must have a sufficient stock of knowledge with which to begin, but the beginning once made he has an admirable opportunity both to improve the quality and increase the quantity of his knowledge and a strong incitement to make the most of it. These more practical remarks will close the subject:

Imperfect Quality of Young Teacher's Knowledge.

1. The teacher will commonly discover, at least if his work is not very elementary, that much of what he knows needs to be improved in its quality; it is marked by a certain generality and indefiniteness. He now finds out that the step from the pupil's chair to the teacher's platform is a long one. He does not feel so sure of his knowledge in the new place as he did in the old one. The questions of the pupils, like the arrows of the archer, find the weak spots in his harness, and he sees the need of knowing many things better than he actually does know them.

Often Insufficient in Quantity.

2. He also discovers that his knowledge is insufficient in quantity, as well as inferior in quality. Under the changed conditions, the questions of the pupils reveal his limitations much more thoroughly than the questions of his own instructors have ever done. Subjects are brought before him in new ways; new vistas open to his vision that he never saw before; and he feels the constant pressure of a great responsibility. Unconsciously, perhaps, he has become a pupil along with his pupils.

3. The teacher now learns, what he could not have fully understood before, that studies may be regarded from

two points of view, — the academical and the pedagogical, — the pupil's view and the teacher's view — and that the two prospects, which lie open to the sight, while they have much in common, still differ. The practical question for the teacher now is not how to learn a subject for himself, but how to teach it to another, or how to help another to learn it. He is led to study the delicate art of asking questions in its concrete relation to the subject-matter and to the mind of the pupil, and thus begins to understand Bacon's famous saying that the skillful question is the half of knowledge. As Sir William Hamilton says, the interrogations of others compel the teacher to interrogate himself. In a word, the pedagogical element of a subject is so essential to complete knowledge that one can hardly be said to understand fully what one has not taught.

Pedagogical Study of a Subject the Perfection of Learning.

PARALLEL READING.—*Discussions on Philosophy and Literature, Education and University Reform*, Sir William Hamilton. Edinburgh and London, William Blackwood & Sons, 1866, pp. 402–404; 766–783.

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